United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Illinois Agricultural Experiment Station; United States Department of Agriculture, Forest Service; and Union County Soil and Water Conservation District

Soil Survey of Union County, Illinois

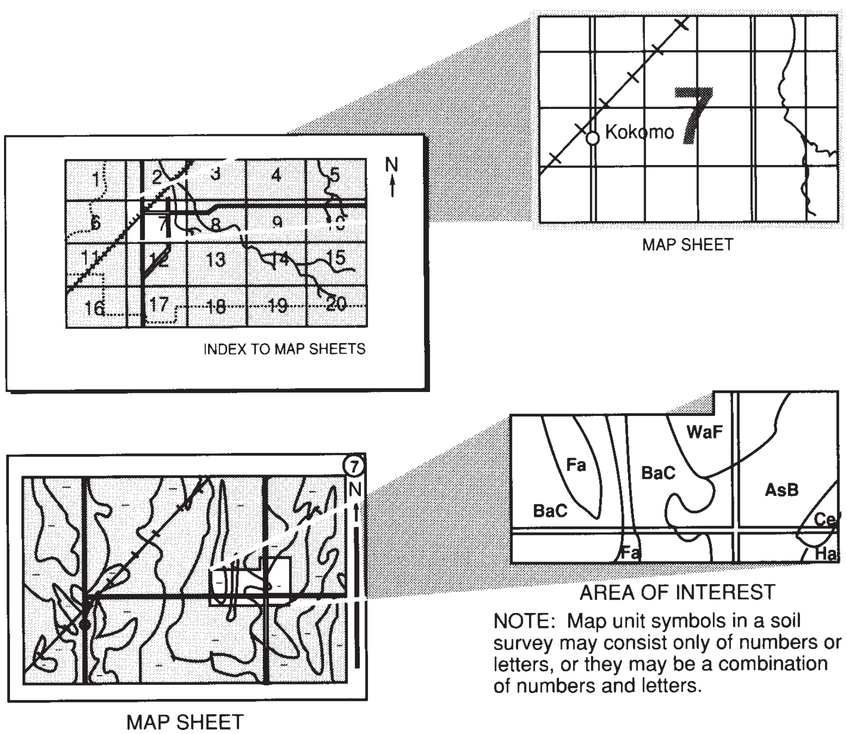
How To Use This Soil Survey

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and go to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2000. Soil names and descriptions were approved in 2001. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2001. This survey was made cooperatively by the Natural Resources Conservation Service; the Illinois Agricultural Experiment Station; the United States Department of Agriculture, Forest Service; and the Union County Soil and Water Conservation District.

Cover: An aerial view of the Bald Knob area near Alto Pass. The dominant soils are Menfro and Clarksville.

Additional information about the Nation’s natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Issued 2005

Foreword

This soil survey contains information that affects land use planning in Union County. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations that affect various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of Union County, Illinois

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United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
Illinois Agricultural Experiment Station; United States Department of Agriculture, Forest Service; and Union County Soil and Water Conservation District

UNION COUNTY is in the southern part of Illinois (fig. 1). It has an area of about 424 square miles, or 271,360 acres *(30)*. It is bordered on the south by Alexander and Pulaski Counties, on the east by Johnson County, on the north by Jackson County, and on the west by the Mississippi River and Cape Girardeau County, Missouri. In 1970, the population of the county was 16,071. Jonesboro, the county seat, had a population of 1,800, and Anna, the largest city in the county, had a population of 4,786. Other towns and villages are Cobden, Alto Pass, Dongola, Lick Creek, Mill Creek, Reynoldsville, Ware, and Wolf Lake.

This soil survey updates the survey of Union County published in 1979 *(22)*. It provides more descriptive and interpretive information and has larger maps, which show the soils in greater detail.

General Nature of the County

This section provides general information about Union County. It describes transportation facilities, natural and agricultural resources, relief and drainage, and climate.

Figure 1.—Location of Union County in Illinois.

Transportation Facilities

Union County is crossed from north to south by Interstate Highway 57, U.S. Highway 51, and State Routes 3 and 127 and from east to west by State Route 146. It has a good system of secondary roads, most of which are hard surfaced. The Mississippi River and railroads also provide valuable means of transportation.

Natural and Agricultural Resources

Union County has approximately 591 farms *(23)*. Most farm owners or operators, however, supplement their income away from the farm. Along with agriculture, a number of small businesses and industries provide employment in the county.

Union County consists of small towns, forests, barren land, wetlands, orchards, vineyards, pasture, and cropland. The top five crop commodities, by acres, are soybeans, hay, corn, wheat, and orchards *(23)*. The top four livestock commodities, by number of animals, are cattle, hogs, poultry, and sheep.

The Shawnee National Forest makes up about 34,000 acres of the county, and the State of Illinois owns about 13,000 acres. The county has two water districts—the Shawnee Valley and the Lick Creek Water Districts.

Relief and Drainage

In Union County, the Mississippi River is about 340 feet above sea level. The bottom land ranges in elevation from 340 to about 360 feet (fig. 2). Generally, the Devonian bedrock hills adjacent to bluffs along the Mississippi River rise to an elevation of 600 to 800 feet, the Mississippian bedrock hills rise to an elevation of 500 to 650 feet, and the Pennsylvanian bedrock hills rise to an elevation of 700 to 850 feet. Bald Knob, which is near Alto Pass in the northwestern part of the county, has an elevation of 1,050 feet. It is the third highest point in Illinois.

Except for the bottom land along the Mississippi River and Cypress and Upper Cache Creeks and the narrow valleys along the smaller streams, Union County is mainly gently rolling to hilly. Vegetables are commonly grown on the narrow bottom land, and row crops commonly are intensively grown on the wider bottom land along the larger streams (fig. 3). The loess-covered bedrock uplands commonly have been used for cropland, pasture, woodland, and orchards.

Figure 2.—View from Pinehills area overlooking Larue Swamp in the Mississippi River Bottoms. Menfro, Clarksville, Goss, and Drury soils are on the bluff. Mostly Karnak and Jacob soils are on the bottom land.

The soils in the county range mainly from well drained in the uplands to poorly drained on the wider bottom lands. Many of the bottomland soils are suited to tile drainage, but the lack of outlets limits subsurface drainage. Most excavated ditches function only when the Mississippi River is low. The bottom land along Cypress and Upper Cache Creeks is flooded annually. Although some areas are protected by levees, much of the bottom land along the Mississippi River is inundated annually by seep water or back water.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Anna, Illinois, in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 34.6 degrees F and the average daily minimum temperature is 25.4 degrees. The lowest temperature on record, which occurred at Anna on January 12, 1918, was -20 degrees. In summer, the average temperature is 76.4 degrees and the average daily maximum temperature is 87.5 degrees. The highest temperature, which occurred at Anna on July 22, 1901, was 112 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 47.68 inches. Of this, about 27.62 inches, or 58

Figure 3.—View from Pinehills area overlooking cropland. Haymond, Wakeland, and Darwin soils are common in these areas.

percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 6.15 inches, recorded at Anna on July 27, 1909. Thunderstorms occur on about 60 days each year, and most occur between May and August.

The average seasonal snowfall is 16.1 inches. The greatest snow depth at any one time during the period of record is 20 inches, recorded on February 25, 1979. On an average, 16 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record is 20.0 inches, recorded on February 25, 1979.

The average relative humidity in mid-afternoon is about 58 percent. Humidity is higher at night, and the average at dawn is about 86 percent. The sun shines 68 percent of the time in summer and 47 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, about 9 miles per hour, from November to April.

How This Soil Survey Was Made

This survey was made to update and digitize the 1979 soil survey of Union County *(22)*. Major Land Resource Areas (MLRAs) are geographically associated land resource units that share a common land use, elevation, topography, climate, water, soils, and vegetation *(28)*. Union County consists of subsets of MLRA 115B (Central Mississippi Valley Wooded Slopes) and MLRA 120 (Kentucky and Indiana Sandstone and Shale Hills and Valleys). Map unit design is based on each soil's occurrence throughout the MLRA. In some cases a soil component may be referred to that does not occur in the Union County subset but that has been mapped within the MLRA.

Soil Mapping

This soil survey includes a description of the soils and miscellaneous areas and their location and a discussion of their properties and the subsequent effects on

suitability, limitations, and management for specified uses. During the 1979 soil survey and as part of this update, soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of soil parent materials. Soil scientists also studied and described soil profiles with the aid of a soil probe or spade. A soil profile is a sequence of natural layers, or horizons, and extends from the soil surface to the unconsolidated material at a depth of about 6 feet. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity. Soil scientists described new soil profile descriptions and studied profile descriptions from previous fieldwork.

The soils and miscellaneous areas in the county occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the county. Each kind of soil and miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or soil-landscape model, of how the soils were formed and the geographic distribution of the soils. Thus, during mapping, this model enables the soil scientists to predict with considerable accuracy the kind of soil or soils at a specific location on the landscape.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil Classification

Soil scientists recorded the characteristics of the soil profiles that they observed. The maximum depth of observation was about 80 inches (6.7 feet). Soil scientists noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, soil reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify and interpret soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research. More information on soil classification is presented in the section “Classification of the Soils.”

Soil Interpretation

While a soil survey is in progress, samples of some of the soils in the survey area generally are collected for laboratory analyses and for engineering tests. Field observations and measurements are also made on selected soils. Soil scientists interpret the data from these analyses and tests, as well as the field-observed characteristics and the soil properties, to estimate the expected behavior of the soils under different uses. Information from other soil surveys and soil studies are also used to develop soil interpretations.

Soils vary across the landscape and with time. Predictions about soil behavior are based not only on how soils occur on the landscape but also on such variables as climate, biological activity, and local land use. Some soil conditions are very stable and predictable over long periods of time. Examples are clay content in the subsoil and cation-exchange capacity. Some soil conditions change rapidly over the course of a year but are still predictable. Examples are monthly soil moisture status within certain depths of the soil profile and monthly depth and duration of ponding in a detailed soil map unit.

Interpretations for some of the soils are field tested through observation of the soils in different uses and under different levels of management. National and regional soil interpretations are modified as necessary to fit local conditions, and some new interpretations are developed to meet local needs. Map unit descriptions, interpretations, and tables for this soil survey were generated using the National Soil Survey Information System (NASIS), version 5.0.

Soil Survey Updating and Digitization

Aerial photographs were taken in 1993. Soil scientists also used U.S. Geological Survey topographic maps enlarged to a scale of 1:12,000 and orthophotographs to relate land and image features. Selected areas of the county were reinvestigated to update and refine local soil-landscape models. Soil boundaries from the 1979 published soil maps were drawn on the orthophotographs. Adjustments of soil boundary lines were made to coincide with the U.S. Geological Survey topographic map contour lines, Digital Elevation Models (DEMs), and tonal patterns on aerial photographs.

The descriptions, names, and delineations of the soils in the Union County subset may not fully agree with those of the soils in adjacent county subsets. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the county subsets.

Detailed Soil Map Units

The map units delineated on the detailed maps represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the heading “Use and Management of the Soils.”

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some “included” areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness,

salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Menfro silt loam, 2 to 5 percent slopes, eroded, is a phase of the Menfro series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are undifferentiated groups or complexes.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Wellston-Westmore silt loams, 18 to 35 percent slopes, is an undifferentiated group in this survey area.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Clarksville-Menfro complex, 35 to 70 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarries, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see “Contents”) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

75B—Drury silt loam, 2 to 5 percent slopes

Setting

Landscape: Upland
Landform: Loess bluff
Position on landform: Footslope

Composition

Drury and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have a dark surface layer
- Soils that contain carbonates
- Soils that have a weakly developed argillic horizon
- Areas that have a lesser or greater slope

Dissimilar:
- Wakeland soils in narrow drainageways
- Elsah soils in narrow drainageways

Soil Properties and Qualities

Parent material: Colluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches

Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

75C—Drury silt loam, 5 to 10 percent slopes

Setting

Landscape: Upland
Landform: Loess bluff
Position on landform: Footslope

Composition

Drury and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have more clay in the subsoil
- Soils that have a dark surface layer
- Areas that have a lesser or greater slope

Dissimilar:
- Well drained Elsah soils on terraces
- Well drained Clarksville and Goss soils on uplands
- Somewhat poorly drained Wakeland soils on flood plains

Soil Properties and Qualities

Parent material: Colluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: High

Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

75C3—Drury silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landscape: Upland
Landform: Loess bluff
Position on landform: Footslope

Composition

Drury and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have a dark surface layer
- Soils that contain carbonates
- Soils that have a weakly developed argillic horizon
- Areas that have a lesser or greater slope

Dissimilar:
- Wakeland soils in narrow drainageways
- Elsah soils in narrow drainageways

Soil Properties and Qualities

Parent material: Colluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.3 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium

Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

75D—Drury silt loam, 10 to 18 percent slopes

Setting

Landscape: Upland
Landform: Loess bluff
Position on landform: Footslope

Composition

Drury and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have a dark surface layer
- Soils that contain carbonates
- Soils that have a weakly developed argillic horizon
- Areas that have a lesser or greater slope

Dissimilar:
- Wakeland soils in narrow drainageways
- Elsah soils in narrow drainageways

Soil Properties and Qualities

Parent material: Colluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79B—Menfro silt loam, 2 to 5 percent slopes

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Shoulder and summit

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Moderately well drained Hosmer soils in the same slope positions as the Menfro soil

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

79C2—Menfro silt loam, 5 to 10 percent slopes, eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope and shoulder

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Moderately well drained Hosmer soils in the same slope positions as the Menfro soil

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79C3—Menfro silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope and shoulder

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Moderately well drained Hosmer soils in the same slope positions as the Menfro soil

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79D2—Menfro silt loam, 10 to 18 percent slopes, eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Moderately well drained Hosmer soils in the same slope positions as the Menfro soil
- Moderately well drained Baxter and Wellston soils on the lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79D3—Menfro silt loam, 10 to 18 percent slopes, severely eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Moderately well drained Hosmer soils in the same slope positions as the Menfro soil
- Well drained Baxter and Wellston soils on the lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79E—Menfro silt loam, 18 to 25 percent slopes

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Well drained Clarksville, Goss, Baxter, and Wellston soils on the lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches

Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

79E2—Menfro silt loam, 18 to 25 percent slopes, eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Well drained Clarksville, Goss, Baxter, and Wellston soils on the lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: High

Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

79E3—Menfro silt loam, 18 to 25 percent slopes, severely eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Well drained Clarksville, Goss, Baxter, and Wellston soils on the lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

79F—Menfro silt loam, 25 to 35 percent slopes

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Well drained Clarksville and Goss soils on the lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

99G—Sandstone and limestone rock land, 35 to 90 percent slopes

Setting

Landscape: Upland
Landform: Escarpment

Composition

Sandstone rock land: 45 percent
Limestone rock land: 40 percent
Dissimilar soils: 15 percent

Inclusions

Dissimilar:
- Weikert soils on summits and shoulders
- Berks soils on shoulders and backslopes
- Muskingum soils on shoulders and backslopes
- Wellston soils on shoulders and backslopes
- Zanesville soils on shoulders and backslopes

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not rated
Hydric soil: Not rated

164A—Stoy silt loam, 0 to 2 percent slopes

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Summit

Composition

Stoy and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons

Dissimilar:
- Well drained Hosmer soils on shoulders and backslopes
- Poorly drained Weir soils in slight depressions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent

Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.0 foot; January through May
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; June through December
Flooding: None
Potential for frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

164B—Stoy silt loam, 2 to 5 percent slopes

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Summit and shoulder

Composition

Stoy and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons

Dissimilar:
- Well drained Hosmer soils on shoulders and backslopes
- Poorly drained Weir soils in slight depressions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.0 foot; January through May
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; June through December

Flooding: None
Potential for frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

214B—Hosmer silt loam, 2 to 5 percent slopes

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Shoulder and summit

Composition

Hosmer and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have well developed fragipans and a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 2.0 feet

Dissimilar:
- Somewhat poorly drained Stoy soils on summits and shoulder slopes
- Well drained Menfro soils on summits and shoulder slopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 8.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.5 feet (transitory); January through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through December
Flooding: None
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete

Potential for surface runoff: High
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

214C2—Hosmer silt loam, 5 to 10 percent slopes, eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Shoulder and backslope

Composition

Hosmer and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have well developed fragipans and a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 2.0 feet

Dissimilar:
- Somewhat poorly drained Stoy soils on summits and shoulder slopes
- Well drained Menfro soils on shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.5 feet (transitory); January through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through December
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

214C3—Hosmer silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope and shoulder

Composition

Hosmer and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have well developed fragipans and a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 2.0 feet

Dissimilar:
- Somewhat poorly drained Stoy soils on summits and shoulder slopes
- Well drained Menfro soils on shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.5 feet (transitory); January through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through December
Flooding: None
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

214D2—Hosmer silt loam, 10 to 18 percent slopes, eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Hosmer and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have well developed fragipans and a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 2.0 feet

Dissimilar:
- Somewhat poorly drained Stoy soils on summits and shoulder slopes
- Well drained Menfro soils on shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.5 feet (transitory); January through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through December
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

214D3—Hosmer silt loam, 10 to 18 percent slopes, severely eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Hosmer and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have well developed fragipans and a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 2.0 feet

Dissimilar:
- Somewhat poorly drained Stoy soils on summits and shoulder slopes
- Well drained Menfro soils on backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.5 feet (transitory); January through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through December
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Farmland of statewide importance
Hydric soil: No

477B—Winfield silt loam, 2 to 5 percent slopes

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Summit and shoulder

Composition

Winfield and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of more than 3.5 feet

Dissimilar:
- Well drained Hosmer soils on summits and shoulders

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.9 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): 2.0 feet; December through April
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; June through October
Potential for frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

477C2—Winfield silt loam, 5 to 10 percent slopes, eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Shoulder and backslope

Composition

Winfield and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of more than 3.5 feet

Dissimilar:
- Well drained Hosmer soils on summits and shoulders

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): 2.0 feet; December through April
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; June through October
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

477C3—Winfield silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Shoulder and backslope

Composition

Winfield and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of more than 3.5 feet

Dissimilar:
- Well drained Hosmer soils on summits and shoulders

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): 2.0 feet; December through April
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; June through October
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

477D2—Winfield silt loam, 10 to 18 percent slopes, eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Winfield and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of more than 3.5 feet

Dissimilar:
- Well drained Hosmer soils on backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): 2.0 feet; December through April
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; June through October
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

477D3—Winfield silt loam, 10 to 18 percent slopes, severely eroded

Setting

Landscape: Upland
Landform: Loess hill
Position on landform: Backslope

Composition

Winfield and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of more than 3.5 feet

Dissimilar:
- Well drained Hosmer soils on backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): 2.0 feet; December through April
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; June through October
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

692D—Menfro-Wellston silt loams, 10 to 18 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Menfro and similar soils: 60 percent
Wellston and similar soils: 30 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that have thinner surface horizons

Dissimilar:
- Moderately well drained Zanesville soils on backslopes

Soil Properties and Qualities

Parent material: Menfro—loess; Wellston—loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Menfro—moderate; Wellston—moderately slow or moderate
Depth to restrictive feature: Menfro—more than 80 inches; Wellston—40 to 72 inches to bedrock (lithic and paralithic)
Available water capacity: Menfro—about 11.8 inches to a depth of 60 inches; Wellston—about 9.6 inches to a depth of 60 inches
Organic matter content of surface layer: Menfro—0.5 to 2.0 percent; Wellston—1.0 to 3.0 percent
Shrink-swell potential: Menfro—moderate; Wellston—low
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: High
Corrosivity: Menfro—low for steel and moderate for concrete; Wellston—moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland
Hydric soils: No

692D2—Menfro-Wellston silt loams, 10 to 18 percent slopes, eroded

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Menfro and similar soils: 60 percent
Wellston and similar soils: 30 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons

Dissimilar:
- Moderately well drained Zanesville soils on backslopes

Soil Properties and Qualities

Parent material: Menfro—loess; Wellston—loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Menfro—moderate; Wellston—not applicable
Depth to restrictive feature: Menfro—more than 80 inches; Wellston—40 to 72 inches to bedrock (lithic and paralithic)
Available water capacity: Menfro—about 11.7 inches to a depth of 60 inches; Wellston—about 9.1 inches to a depth of 60 inches
Organic matter content of surface layer: Menfro—0.5 to 2.0 percent; Wellston—1.0 to 3.0 percent
Shrink-swell potential: Menfro—moderate; Wellston—low
Depth to wet soil moisture status: Menfro—more than 6.0 feet all year; Wellston—not applicable
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland
Hydric soils: No

692F—Menfro-Wellston silt loams, 18 to 35 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Menfro and similar soils: 60 percent
Wellston and similar soils: 30 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that have thinner surface horizons

Dissimilar:
- Well drained Neotoma and Westmore soils on backslopes

Soil Properties and Qualities

Parent material: Menfro—loess; Wellston—loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Menfro—moderate; Wellston—moderately slow or moderate
Depth to restrictive feature: Menfro—more than 80 inches; Wellston—40 to 72 inches to bedrock (lithic and paralithic)
Available water capacity: Menfro—about 11.8 inches to a depth of 60 inches; Wellston—about 9.6 inches to a depth of 60 inches
Organic matter content of surface layer: Menfro—0.5 to 2.0 percent; Wellston—1.0 to 3.0 percent
Shrink-swell potential: Menfro—moderate; Wellston—low
Depth to wet soil moisture status: Menfro—more than 6.0 feet all year; Wellston—not applicable
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

694D—Menfro-Baxter complex, 10 to 18 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Menfro and similar soils: 50 percent
Baxter and similar soils: 40 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet
- Areas that are shallower to cherty material

Dissimilar:
- Well drained Elsah soils along narrow bottom lands

Soil Properties and Qualities

Parent material: Menfro—loess; Baxter—loess over cherty residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: Menfro—about 11.8 inches to a depth of 60 inches; Baxter—about 7.9 inches to a depth of 60 inches
Organic matter content of surface layer: Menfro—0.5 to 2.0 percent; Baxter—2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: Menfro—high; Baxter—none
Corrosivity: Menfro—low for steel and moderate for concrete; Baxter—high for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland
Hydric soils: No

694D2—Menfro-Baxter complex, 10 to 18 percent slopes, eroded

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Menfro and similar soils: 50 percent
Baxter and similar soils: 40 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet
- Areas that are shallower to cherty material

Dissimilar:
- Well drained Elsah soils along narrow bottom lands

Soil Properties and Qualities

Parent material: Menfro—loess; Baxter—loess over cherty residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: Menfro—about 11.7 inches to a depth of 60 inches; Baxter—about 7.7 inches to a depth of 60 inches
Organic matter content of surface layer: Menfro—0.5 to 2.0 percent; Baxter—2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: Menfro—high; Baxter—none
Corrosivity: Menfro—low for steel and moderate for concrete; Baxter—high for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland
Hydric soils: No

694F—Menfro-Baxter complex, 18 to 35 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Menfro and similar soils: 55 percent
Baxter and similar soils: 35 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet
- Areas that are shallower to cherty material

Dissimilar:
- Well drained Elsah soils along narrow bottom lands

Soil Properties and Qualities

Parent material: Menfro—loess; Baxter—loess over cherty residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: Menfro—about 11.8 inches to a depth of 60 inches; Baxter—about 7.9 inches to a depth of 60 inches
Organic matter content of surface layer: Menfro—0.5 to 2.0 percent; Baxter—2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: Menfro—high; Baxter—none
Corrosivity: Menfro—low for steel and moderate for concrete; Baxter—high for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

801B—Orthents, silty, undulating

Setting

Landscape: Upland (specifically areas of cut and fill, borrow pits, and reclaimed land)
Landform: Hillslope
Position on landform: Summit, shoulder, backslope, footslope, and toeslope

Composition

Orthents and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas where the soil is sandy or clayey
- Borrow areas
- Areas of natural or undisturbed soils

Dissimilar:
- Naturally occurring soils

Soil Properties and Qualities

Parent material: Earthy fill
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.0 inches to a depth of 60 inches
Organic matter content of surface layer: 0.0 to 1.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): 1.0 foot; November through May
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; July through September
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: Not prime farmland
Hydric soils: No

802D—Orthents, loamy, hilly

Setting

Landscape: Valley (specifically areas of cut and fill and artificial levees)

Landform: River valley
Position on landform: Toeslope, footslope, backslope, shoulder, and summit

Composition

Orthents and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Wet borrow pits and areas of clayey soils
- Areas of natural or undisturbed soils

Dissimilar:
- Naturally occurring soils

Soil Properties and Qualities

Parent material: Earthy fill
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Organic matter content of surface layer: 0.1 to 1.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: Moderate
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland
Hydric soils: No

832F—Menfro-Clarksville complex, 18 to 35 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Menfro and similar soils: 45 percent
Clarksville and similar soils: 40 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have clayey residuum in the subsoil
- Soils that have thinner surface horizons
- Soils that have fewer chert fragments in the surface horizons

Dissimilar:
- Well drained Elsah soils on narrow bottom land

Soil Properties and Qualities

Parent material: Menfro—loess; Clarksville—colluvium over cherty residuum
Drainage class: Menfro—well drained; Clarksville—somewhat excessively drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: Menfro—about 11.8 inches to a depth of 60 inches; Clarksville—about 5.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: Menfro—high; Clarksville—moderate
Corrosivity: Menfro—low for steel and moderate for concrete; Clarksville—low for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Menfro—low; Clarksville—not applicable

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

832G—Clarksville-Menfro complex, 35 to 70 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Clarksville and similar soils: 45 percent
Menfro and similar soils: 40 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have clayey residuum in the subsoil

- Soils that have thinner surface horizons
- Soils that have fewer chert fragments in the surface horizons

Dissimilar:
- Well drained Elsah soils on narrow bottom land

Soil Properties and Qualities

Parent material: Clarksville—colluvium over cherty residuum; Menfro—loess
Drainage class: Clarksville—somewhat excessively drained; Menfro—well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: Clarksville—about 5.6 inches to a depth of 60 inches; Menfro—about 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: Clarksville—moderate; Menfro—high
Corrosivity: Clarksville—low for steel and high for concrete; Menfro—low for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Clarksville—not applicable; Menfro—low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland
Hydric soils: No

833F—Menfro-Goss complex, 18 to 35 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Menfro and similar soils: 60 percent
Goss and similar soils: 30 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that do not have clayey residuum in the subsoil
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Well drained Elsah soils on narrow bottom land

Soil Properties and Qualities

Parent material: Menfro—loess; Goss—colluvium over cherty residuum weathered from limestone and dolomite
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: Menfro—about 11.8 inches to a depth of 60 inches; Goss—about 4.4 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: Menfro—high; Goss—moderate
Corrosivity: Menfro—moderate for steel and high for concrete; Goss—moderate for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Menfro—low; Goss—not applicable

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

833G—Goss-Menfro complex, 35 to 70 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Goss and similar soils: 60 percent
Menfro and similar soils: 30 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that do not have clayey residuum in the subsoil
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Well drained Elsah soils on narrow bottom land

Soil Properties and Qualities

Parent material: Goss—colluvium over cherty residuum weathered from limestone and dolomite; Menfro—loess
Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: Goss—about 4.4 inches to a depth of 60 inches; Menfro—about 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Potential for frost action: Goss—moderate; Menfro—high
Corrosivity: Goss—moderate for steel and moderate for concrete; Menfro—moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Gosss—not applicable; Menfro—low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland
Hydric soils: No

834F—Wellston-Westmore silt loams, 18 to 35 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Wellston and similar soils: 50 percent
Westmore and similar soils: 35 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that have a thicker loess cap

Dissimilar:
- Moderately well drained Zanesville soils on the upper backslopes
- Moderately well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Parent material: Wellston—loess over residuum; Westmore—residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Wellston—moderate; Westmore—slow
Permeability below a depth of 60 inches: Wellston—moderately slow or moderate; Westmore—slow to moderate

Depth to restrictive feature: Wellston—40 to 72 inches to bedrock (lithic and paralithic); Westmore—48 to 80 inches to bedrock (paralithic and lithic)
Available water capacity: Wellston—about 9.6 inches to a depth of 60 inches; Westmore—about 8.9 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Wellston—low; Westmore—high
Potential for frost action: High
Corrosivity: Wellston—moderate for steel and high for concrete; Westmore—high for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections "Use and Management of the Soils" and "Soil Properties."

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

834G—Wellston-Westmore silt loams, 35 to 70 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Wellston and similar soils: 50 percent
Westmore and similar soils: 35 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that have a thicker loess cap

Dissimilar:
- Moderately well drained Zanesville soils on the upper backslopes
- Moderately well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Parent material: Wellston—loess over residuum; Westmore—residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Wellston—moderate; Westmore—slow
Permeability below a depth of 60 inches: Wellston—moderately slow or moderate; Westmore—slow to moderate
Depth to restrictive feature: Wellston—40 to 72 inches to bedrock (lithic and paralithic); Westmore—48 to 80 inches to bedrock (paralithic and lithic)

Available water capacity: Wellston—about 9.6 inches to a depth of 60 inches; Westmore—about 8.9 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Wellston—low; Westmore—high
Potential for frost action: High
Corrosivity: Wellston—moderate for steel and high for concrete; Westmore—high for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections "Use and Management of the Soils" and "Soil Properties."

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland
Hydric soils: No

864—Pits, quarries

Setting

Landscape: Upland (specifically areas of quarries)
Landform: Hill
Position on landform: Summit, shoulder, backslope, footslope, and toeslope

Composition

Pits, quarries: 90 percent
Dissimilar soils: 10 percent

Inclusions

Dissimilar:
- Rim of soil around the top of the sidewalls
- Pools of water and scattered areas of debris

Soil Properties and Qualities

This map unit consists of open pits, the entrances to room and pillar quarries, and the adjacent work and storage areas. In a typical area, the basin and sidewalls consist of limestone bedrock. In many places a talus slope is along the basin or at the foot of the sidewalls. The work area includes small buildings, machinery, haulage roads, and stockpiles of crushed limestone.

Management

For general and detailed information about managing this map unit, see the sections "Use and Management of the Soils" and "Soil Properties."

Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated
Hydric soil: Not rated

940D—Zanesville-Westmore silt loams, 10 to 18 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Zanesville and similar soils: 45 percent
Westmore and similar soils: 45 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Stony areas along drainageways
- Areas that have thicker loess

Dissimilar:
- Moderately well drained Burnside soils on narrow flood plains
- Well drained Hosmer soils on backslopes

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: Zanesville—20 to 32 inches to a fragipan and 41 to 80 inches to bedrock (lithic and paralithic); Westmore—48 to 80 inches to bedrock (paralithic and lithic)
Available water capacity: Zanesville—about 8.3 inches to a depth of 60 inches; Westmore—about 8.9 inches to a depth of 60 inches
Organic matter content of surface layer: Zanesville—1.0 to 2.0 percent; Westmore—1.0 to 3.0 percent
Shrink-swell potential: Zanesville—low; Westmore—high
Perched seasonal high water table at highest level (depth, months): Zanesville—2.0 feet (transitory) from November through April; Westmore—not applicable
Perched seasonal high water table at lowest level (depth, months): Zanesville—more than 6.0 feet from May through October; Westmore—not applicable
Potential for frost action: Zanesville—none; Westmore—high
Corrosivity: Zanesville—moderate for steel and high for concrete; Westmore—high for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e

Prime farmland: Not prime farmland
Hydric soils: No

940D2—Zanesville-Westmore silt loams, 10 to 18 percent slopes, eroded

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Zanesville and similar soils: 45 percent
Westmore and similar soils: 45 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Stony areas along drainageways
- Areas that have thicker loess

Dissimilar:
- Moderately well drained Burnside soils on narrow flood plains
- Well drained Hosmer soils on backslopes

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Not applicable
Depth to restrictive feature: Zanesville—19 to 32 inches to a fragipan and 41 to 80 inches to bedrock (lithic and paralithic); Westmore—48 to 80 inches to bedrock (paralithic and lithic)
Available water capacity: Zanesville—about 7.6 inches to a depth of 60 inches; Westmore—about 8.5 inches to a depth of 60 inches
Organic matter content of surface layer: Zanesville—1.0 to 2.0 percent; Westmore—1.0 to 3.0 percent
Shrink-swell potential: Zanesville—low; Westmore—high
Perched seasonal high water table at highest level (depth, months): Zanesville—2.0 feet (transitory) from November through April; Westmore—not applicable
Perched seasonal high water table at lowest level (depth, months): Zanesville—more than 6.0 feet from May through October; Westmore—not applicable
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: Zanesville—none; Westmore—high
Corrosivity: Zanesville—moderate for steel and high for concrete; Westmore—high for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland
Hydric soils: No

977F—Wellston-Neotoma complex, 18 to 35 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Wellston and similar soils: 45 percent
Neotoma and similar soils: 45 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas where boulders and rock ledges are common
- Areas where bands of clayey material that weathered from shale are evident

Dissimilar:
- Moderately well drained Zanesville soils on the upper backslopes
- Moderately well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Parent material: Wellston—loess over residuum; Neotoma—residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Wellston—moderately slow or moderate; Neotoma—very slow to moderately rapid
Depth to restrictive feature: Wellston—40 to 72 inches to bedrock (lithic and paralithic); Neotoma—40 to 80 inches to bedrock (lithic)
Available water capacity: Wellston—about 9.6 inches to a depth of 60 inches; Neotoma—about 5.6 inches to a depth of 60 inches
Organic matter content of surface layer: Wellston—1.0 to 3.0 percent; Neotoma—3.0 to 6.0 percent
Shrink-swell potential: Low
Potential for frost action: Wellston—high; Neotoma—low
Corrosivity: Wellston—moderate for steel and high for concrete; Neotoma—low for steel and moderate for concrete
Potential for surface runoff: Wellston—high; Neotoma—medium
Water erosion susceptibility: High
Wind erosion susceptibility: Wellston—low; Neotoma—not applicable

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

977G—Wellston-Neotoma complex, 35 to 70 percent slopes

Setting

Landscape: Upland
Landform: Hillslope
Position on landform: Backslope

Composition

Wellston and similar soils: 45 percent
Neotoma and similar soils: 45 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas where boulders and rock ledges are common
- Areas where bands of clayey material that weathered from shale are evident

Dissimilar:
- Moderately well drained Zanesville soils on the upper backslopes
- Moderately well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Parent material: Wellston—loess over residuum; Neotoma—residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Wellston—moderately slow or moderate; Neotoma—very slow to moderately rapid
Depth to restrictive feature: Wellston—40 to 72 inches to bedrock (lithic and paralithic); Neotoma—40 to 80 inches to bedrock (lithic)
Available water capacity: Wellston—about 9.6 inches to a depth of 60 inches; Neotoma—about 5.7 inches to a depth of 60 inches
Organic matter content of surface layer: Wellston—1.0 to 3.0 percent; Neotoma—3.0 to 6.0 percent
Shrink-swell potential: Low
Potential for frost action: Wellston—high; Neotoma—low
Corrosivity: Wellston—moderate for steel and high for concrete; Neotoma—low for steel and moderate for concrete
Potential for surface runoff: Wellston—high; Neotoma—medium
Water erosion susceptibility: High
Wind erosion susceptibility: Wellston—low; Neotoma—not applicable

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland
Hydric soils: No

1334A—Birds silt loam, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Birds and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that have received silty overwash
- Somewhat poorly drained Wakeland soils on the slightly higher portions of the flood plain

Dissimilar:
- Poorly drained Piopolis soils on flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): At the surface; November through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 1.0 foot all year
Flooding when least likely (frequency, months): Frequent; November through June
Flooding when most likely (frequency, months): Frequent; November through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soil: Yes

1426A—Karnak silty clay, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Karnak and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Overflow channels where silty overwash is evident
- Areas that are not ponded

Dissimilar:
- Poorly drained Cairo soils on slight rises on flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Very poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.0 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): At the surface; November through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 1.0 foot all year
Flooding when least likely (frequency, months): Frequent; November through June
Flooding when most likely (frequency, months): Frequent; November through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soil: Yes

3071A—Darwin silty clay, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Darwin and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are occasionally flooded
- Areas that have sandy or silty overwash on the surface

Dissimilar:
- Poorly drained Cairo soils in positions similar to or higher than those of the Darwin soil
- Somewhat poorly drained Medway soils on slight ridges

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.8 inches to a depth of 60 inches
Organic matter content of surface layer: 4.0 to 5.0 percent
Shrink-swell potential: Very high
Apparent seasonal high water table at highest level (depth, months): At the surface; December through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.5 foot all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: Moderate
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3071L—Darwin silty clay, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Darwin and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are occasionally flooded or flooded for shorter duration
- Areas that have sandy or silty overwash on the surface

Dissimilar:
- Poorly drained Cairo soils in positions similar to or higher than those of the Darwin soil
- Somewhat poorly drained Medway soils on slight ridges

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.8 inches to a depth of 60 inches
Organic matter content of surface layer: 4.0 to 5.0 percent
Shrink-swell potential: Very high
Apparent seasonal high water table at highest level (depth, months): At the surface; December through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.5 foot all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: Moderate
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections "Use and Management of the Soils" and "Soil Properties."

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soil: Yes

3092BL—Sarpy loamy fine sand, 1 to 8 percent slopes, frequently flooded, long duration

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Sarpy and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas where slopes are short and steep
- Areas that are occasionally flooded

Dissimilar:
- Well drained Ware soils in slope positions similar to those of the Sarpy soil
- Somewhat poorly drained Medway soils in slope positions similar to those of the Sarpy soil

Soil Properties and Qualities

Parent material: Sandy alluvium
Drainage class: Excessively drained
Slowest permeability within a depth of 40 inches: Rapid
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: Low
Corrosivity: Low for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: High

Management

For general and detailed information about managing this map unit, see the sections "Use and Management of the Soils" and "Soil Properties."

Interpretive Groups

Land capability classification: 5w
Prime farmland: Farmland of statewide importance
Hydric soil: Yes

3162L—Gorham silty clay loam, 0 to 3 percent slopes, frequently flooded, long duration

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Gorham and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas where the surface layer is loamy
- Areas that are occasionally flooded

Dissimilar:
- Moderately well drained Medway soils on slight rises
- Poorly drained Cairo soils in depressional areas

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately rapid or rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 4.0 to 5.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): At the surface; December through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.5 foot all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soil: Yes

3180A—Dupo silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Dupo and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are occasionally flooded

Dissimilar:
- Poorly drained Darwin soils in the slightly depressional areas
- Somewhat poorly drained Wakeland soils in the slightly higher areas

Soil Properties and Qualities

Parent material: Silty alluvium over clayey alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 20 to 40 inches to an abrupt textural change
Available water capacity: About 10.3 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): 0.5 foot; December through April
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; August through October
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w

Prime farmland: Prime farmland if protected from flooding or not frequently flooded during the growing season
Hydric soil: No

3288A—Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Petrolia and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that have received silty overwash
- Areas that are occasionally flooded

Dissimilar:
- Depressional areas of poorly drained and very poorly drained Jacob and Karnak soils

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): At the surface; December through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.5 foot all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w

Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3331A—Haymond silt loam, 0 to 3 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Haymond and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are occasionally flooded or flooded for shorter duration
- Somewhat poorly drained Wakeland soils in the slightly depressional areas

Dissimilar:
- Well drained or somewhat excessively drained Elsah soils adjacent to stream channels
- Moderately well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.2 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): 3.0 feet; January through March
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through October
Flooding when least likely (frequency, months): Frequent; January through June
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: High
Corrosivity: Low for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w

Prime farmland: Prime farmland if protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3333A—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Wakeland and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are occasionally flooded

Dissimilar:
- Well drained Haymond soils on slight rises
- Poorly drained Birds soils in slight depressions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): 1.0 foot; November through May
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; July through September
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: High
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w

Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: No

3334A—Birds silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Birds and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are occasionally flooded
- Somewhat poorly drained Wakeland soils on the slightly higher portions of the flood plain

Dissimilar:
- Poorly drained Piopolis soils on flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): At the surface; December through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.5 foot all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w

Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3426A—Karnak silty clay, 0 to 2 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Karnak and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:

- Overflow channels where silty overwash is evident
- Areas that are occasionally flooded

Dissimilar:

- Poorly drained Cairo soils on slight rises on flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.0 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): At the surface; December through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.5 foot all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w

Prime farmland: Farmland of statewide importance
Hydric soil: Yes

3456B—Ware fine sandy loam, 1 to 6 percent slopes, frequently flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Ware and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are occasionally flooded
- Areas that are sandy
- Areas where slopes are short and steep

Dissimilar:
- Moderately well drained Medway soils on low ridges and natural levees along sloughs or overflow channels of flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately rapid or rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.9 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: Moderate
Corrosivity: Low for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderately high

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3s
Prime farmland: Prime farmland if protected from flooding or not frequently flooded during the growing season
Hydric soil: No

3590L—Cairo silty clay, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Cairo and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils that are moderately acid or strongly acid in the subsoil
- Areas that are occasionally flooded or flooded for shorter duration

Dissimilar:
- Somewhat poorly drained Bowdre soils on slight rises
- Poorly drained Gorham soils on slight rises
- Poorly drained and very poorly drained Darwin soils in depressional areas

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: 20 to 39 inches to an abrupt textural change
Available water capacity: About 7.6 inches to a depth of 60 inches
Organic matter content of surface layer: 5.0 to 7.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): At the surface; December through April
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.2 foot all year
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: Moderate
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soil: Yes

3682BL—Medway silty clay loam, 1 to 6 percent slopes, frequently flooded, long duration

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Medway and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are occasionally flooded or flooded for shorter duration
- Areas along overflow channels where loamy overwash is present
- Areas where slopes are short and steep

Dissimilar:
- Moderately well drained Ware soils on slight rises
- Somewhat poorly drained Bowdre soils in similar or lower-lying positions
- Poorly drained Gorham soils in the lower-lying positions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.8 inches to a depth of 60 inches
Organic matter content of surface layer: 3.0 to 6.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): 3.0 feet; January through March
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through October
Flooding when least likely (frequency, months): Occasional; November and December
Flooding when most likely (frequency, months): Frequent; January through June
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Very low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soil: Yes

5079B2—Menfro silt loam, karst, 2 to 5 percent slopes, eroded

Setting

Landscape: Karst
Landform: Loess hill
Position on landform: Shoulder and summit

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Moderately well drained Hosmer soils in the same slope positions as the Menfro soil
- Somewhat poorly drained Wakeland soils on footslopes and toeslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

5079C3—Menfro silt loam, karst, 5 to 10 percent slopes, severely eroded

Setting

Landscape: Karst
Landform: Loess hill
Position on landform: Summit, shoulder, and backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Moderately well drained Hosmer soils in the same slope positions as the Menfro soil
- Somewhat poorly drained Wakeland soils on footslopes and toeslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

5079D3—Menfro silt loam, karst, 10 to 18 percent slopes, severely eroded

Setting

Landscape: Karst
Landform: Loess hill
Position on landform: Backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Moderately well drained Hosmer soils in the same slope positions as the Menfro soil
- Somewhat poorly drained Wakeland soils on footslopes and toeslopes
- Well drained Baxter soils on the lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland
Hydric soil: No

5079E3—Menfro silt loam, karst, 18 to 25 percent slopes, severely eroded

Setting

Landscape: Karst
Landform: Loess hill
Position on landform: Backslope

Composition

Menfro and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar:
- Well drained Baxter soils on the lower backslopes
- Somewhat poorly drained Wakeland soils on footslopes and toeslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Depth to wet soil moisture status: More than 6.0 feet all year
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

5214B2—Hosmer silt loam, karst, 2 to 5 percent slopes, eroded

Setting

Landscape: Karst
Landform: Loess hill
Position on landform: Backslope and shoulder

Composition

Hosmer and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner or thicker surface horizons
- Well developed fragipan soils that have a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 2.0 feet

Dissimilar:
- Somewhat poorly drained Stoy soils on summits and shoulder slopes
- Well drained Menfro soils on summits and shoulder slopes
- Somewhat poorly drained Wakeland soils on footslopes and toeslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.5 feet (transitory); January through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through December
Accelerated erosion: Surface layer has been thinned by erosion
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

5214C3—Hosmer silt loam, karst, 5 to 10 percent slopes, severely eroded

Setting

Landscape: Karst
Landform: Loess hill
Position on landform: Summit and shoulder

Composition

Hosmer and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thinner surface horizons
- Well developed fragipan soils that have a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 2.0 feet

Dissimilar:
- Somewhat poorly drained Stoy soils on summits and shoulder slopes
- Well drained Menfro soils on shoulders and backslopes
- Somewhat poorly drained Wakeland soils on footslopes and toeslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.5 feet (transitory); January through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through December
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

5214D3—Hosmer silt loam, karst, 10 to 18 percent slopes, severely eroded

Setting

Landscape: Karst
Landform: Loess hill
Position on landform: Backslope

Composition

Hosmer and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Soils that have thicker surface horizons
- Well developed fragipan soils that have a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 2.0 feet

Dissimilar:
- Somewhat poorly drained Stoy soils on summits and shoulder slopes
- Well drained Menfro soils on backslopes
- Somewhat poorly drained Wakeland soils on footslopes and toeslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Perched seasonal high water table at highest level (depth, months): 1.5 feet (transitory); January through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through December
Accelerated erosion: Surface layer is mostly subsoil material
Potential for frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

8071A—Darwin silty clay, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Darwin and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas that have sandy or silty overwash on the surface

Dissimilar:
- Poorly drained Cairo soils in positions similar to or higher than those of the Darwin soils
- Somewhat poorly drained Medway soils on slight ridges

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.8 inches to a depth of 60 inches
Organic matter content of surface layer: 4.0 to 5.0 percent
Shrink-swell potential: Very high
Apparent seasonal high water table at highest level (depth, months): At the surface; December
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.2 foot all year
Flooding when least likely (frequency, months): Occasional; November through June
Flooding when most likely (frequency, months): Occasional; November through June
Potential for frost action: Moderate
Corrosivity: High for steel and low for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8085A—Jacob silty clay, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Jacob and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded

Dissimilar:
- Poorly drained Karnak, Darwin, and Piopolis soils on flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Very high
Apparent seasonal high water table at highest level (depth, months): At the surface; December
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.2 foot all year
Flooding when least likely (frequency, months): Occasional; November through June
Flooding when most likely (frequency, months): Occasional; November through June
Potential for frost action: Moderate
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4w
Prime farmland: Farmland of statewide importance
Hydric soil: Yes

8092B—Sarpy loamy fine sand, 1 to 8 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Sarpy and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas where slopes are short and steep
- Areas that are rarely flooded or frequently flooded

Dissimilar:
- Well drained Ware soils in slope positions similar to those of the Sarpy soil
- Somewhat poorly drained Medway soils in slope positions similar to those of the Sarpy soil

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Excessively drained
Slowest permeability within a depth of 40 inches: Rapid
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 4.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: Low
Corrosivity: Low for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: High

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 4s
Prime farmland: Farmland of statewide importance
Hydric soil: No

8162A—Gorham silty clay loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Gorham and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas where the surface layer is loamy
- Areas that are occasionally flooded

Dissimilar:
- Moderately well drained Medway soils on slight rises
- Poorly drained Cairo soils in depressional areas

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately rapid or rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 4.0 to 5.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): At the surface; November through June
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.2 foot all year
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8180A—Dupo silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Dupo and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded

Dissimilar:
- Poorly drained Darwin soils in the slightly depressional areas
- Somewhat poorly drained Wakeland soils in the slightly higher areas

Soil Properties and Qualities

Parent material: Silty alluvium over clayey alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 20 to 40 inches to an abrupt textural change
Available water capacity: About 10.3 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): 0.5 foot; December through April
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; August through October
Flooding when least likely (frequency, months): Occasional; November through June
Flooding when most likely (frequency, months): Occasional; November through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w
Prime farmland: All areas are prime farmland
Hydric soil: No

8284A—Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Tice and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas that have loamy overwash

Dissimilar:
- Poorly drained Cairo and Darwin soils in depressions
- Somewhat poorly drained Medway soils on slight rises

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.6 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): 1.0 foot; November through May
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; July through September
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

8331A—Haymond silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Haymond and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Somewhat poorly drained Wakeland soils in the slightly depressional areas

Dissimilar:
- Well drained or somewhat excessively drained Elsah soils adjacent to stream channels
- Moderately well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.2 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): 3.0 feet; January through March
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through October
Flooding when least likely (frequency, months): Occasional; January through June
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: High
Corrosivity: Low for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

8333A—Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Wakeland and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded

Dissimilar:
- Well drained Haymond soils on slight rises
- Poorly drained Birds soils in slight depressions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): 1.0 foot; November through May
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; July through September
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: High
Corrosivity: Moderate for steel and low for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained
Hydric soil: No

8334A—Birds silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Birds and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Somewhat poorly drained Wakeland soils on the slightly higher portions of the flood plain

Dissimilar:
- Poorly drained Piopolis soils on flood plains

Soil Properties and Qualities

Parent material: Silty alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): At the surface; November through June
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.2 foot all year
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8420A—Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Piopolis and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas that have silty overwash

Dissimilar:
- Poorly drained Jacob and Karnak soils in the slightly depressional areas

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Apparent seasonal high water table at highest level (depth, months): At the surface; November through June
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.2 foot all year
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8422A—Cape silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Cape and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas that have short, steep slopes

Dissimilar:
- Poorly drained Karnak soils in depressional areas

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): At the surface; November through June
Apparent seasonal high water table at lowest level (depth, months): 1.0 foot; July through October
Ponding: At a depth of 1.0 foot all year
Flooding when least likely (frequency, months): Occasional; November through June
Flooding when most likely (frequency, months): Occasional; November through June
Potential for frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8426A—Karnak clay, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Karnak and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Overflow channels where silty overwash is evident
- Areas that are rarely flooded or frequently flooded
- Areas that are occasionally flooded or flooded for shorter duration

Dissimilar:
- Poorly drained Cairo soils on slight rises on flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 14.0 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): At the surface; November through June
Apparent seasonal high water table at lowest level (depth, months): 1.0 foot; July through October
Ponding: At a depth of 1.0 foot all year
Flooding when least likely (frequency, months): Occasional; November through June
Flooding when most likely (frequency, months): Occasional; November through June
Potential for frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w
Prime farmland: Farmland of statewide importance
Hydric soil: Yes

8427B—Burnside silt loam, 1 to 4 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Burnside and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas that have a loamy or silty surface layer more than 24 inches thick
- Areas that have bedrock within a depth of 40 inches
- Areas along overflow channels where the surface layer is stony

Dissimilar:
- Somewhat poorly drained Wakeland soils in depressional areas

Soil Properties and Qualities

Parent material: Fragmental loamy alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Not applicable
Depth to restrictive feature: 40 to 80 inches to bedrock (lithic)
Available water capacity: About 9.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Flooding when least likely (frequency, months): Occasional; January through June
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: Moderate
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

8456B—Ware loam, 1 to 6 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Ware and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas that are sandy
- Areas where slopes are short and steep

Dissimilar:
- Moderately well drained Medway soils on low ridges and natural levees along sloughs or overflow channels of flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately rapid or rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.9 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Flooding when least likely (frequency, months): Occasional; January through June
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: Moderate
Corrosivity: Low for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2s
Prime farmland: All areas are prime farmland
Hydric soil: No

8475B—Elsah silt loam, 1 to 4 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Elsah and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas where the silty surface layer is more than 25 inches thick
- Areas where bedrock is within a depth of 40 inches

Dissimilar:
- Somewhat poorly drained Wakeland soils in depressional areas

Soil Properties and Qualities

Parent material: Gravelly and cobbly loamy alluvium derived from chert
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately rapid or rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Depth to wet soil moisture status: More than 6.0 feet all year
Flooding when least likely (frequency, months): Occasional; January through June
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: Moderate
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2s
Prime farmland: All areas are prime farmland
Hydric soil: No

8589B—Bowdre silty clay, 1 to 6 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Bowdre and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas along overflow channels where loamy overwash is evident

Dissimilar:
- Poorly drained Cairo and Darwin soils in the lower-lying or depressional areas

Soil Properties and Qualities

Parent material: Clayey alluvium over loamy alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: 12 to 20 inches to an abrupt textural change
Available water capacity: About 11.3 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): 1.0 foot; November through May
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; July through September
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: None
Corrosivity: High for steel and low for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

8590A—Cairo silty clay, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Cairo and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Soils where the subsoil is moderately acid or strongly acid
- Areas that are rarely flooded or frequently flooded

Dissimilar:
- Somewhat poorly drained Bowdre soils on slight rises
- Poorly drained Gorham soils on slight rises
- Poorly drained and very poorly drained Darwin soils in depressional areas

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: 20 to 39 inches to an abrupt textural change
Available water capacity: About 7.6 inches to a depth of 60 inches
Organic matter content of surface layer: 5.0 to 7.0 percent
Shrink-swell potential: High
Apparent seasonal high water table at highest level (depth, months): At the surface; November through June
Apparent seasonal high water table at lowest level (depth, months): 3.0 feet; July through October
Ponding: At a depth of 0.2 foot all year
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: Moderate
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8682B—Medway silty clay loam, 1 to 6 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Flood plain
Position on landform: None assigned

Composition

Medway and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded
- Areas along overflow channels where loamy overwash is present
- Areas where slopes are short and steep

Dissimilar:
- Moderately well drained Ware soils on slight rises
- Somewhat poorly drained Bowdre soils in similar or lower-lying positions
- Poorly drained Gorham soils in the lower-lying positions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.8 inches to a depth of 60 inches
Organic matter content of surface layer: 3.0 to 6.0 percent
Shrink-swell potential: Low
Apparent seasonal high water table at highest level (depth, months): 3.0 feet; January through March
Apparent seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through October
Flooding when least likely (frequency, months): Occasional; January through June
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Very low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

8787A—Banlic silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landscape: Valley
Landform: Terrace
Position on landform: None assigned

Composition

Banlic and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar:
- Areas that are rarely flooded or frequently flooded

Dissimilar:
- Somewhat poorly drained Wakeland soils adjacent to stream channels
- Well drained Haymond soils adjacent to stream channels

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Perched seasonal high water table at highest level (depth, months): 0.5 foot; November through April
Perched seasonal high water table at lowest level (depth, months): More than 6.0 feet; May through October
Flooding when least likely (frequency, months): Rare; November and December
Flooding when most likely (frequency, months): Occasional; January through June
Potential for frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Management

For general and detailed information about managing this map unit, see the sections “Use and Management of the Soils” and “Soil Properties.”

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained
Hydric soil: No

MW—Miscellaneous water

This map unit consists of water bodies at municipal sewage treatment plants and animal waste treatment facilities. This unit is not assigned any interpretive groups.

W—Water

This map unit consists of natural water bodies, such as ponds, lakes, and rivers. This unit is not assigned any interpretive groups.

Use and Management of the Soils

This survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are not limited, somewhat limited, and very limited. The suitability ratings are expressed as well suited, moderately suited, poorly suited, and unsuited or as good, fair, and poor.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

Figure 4.—A cornfield in the Mississippi River Bottoms near the Trail of Tears Forest. The soils in this area are Haymond, Wakeland, Cape, and Piopolis.

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Agronomy

General management needed for crops and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained, the estimated yields of the main crops and pasture plants are listed for each soil, and prime farmland is described.

Planners of management systems for individual fields or farms should consider obtaining specific information from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

The soils in Union County have good potential for continued crop production, especially if the latest crop production technology is applied (figs. 4 and 5). This soil survey can be used as a guide for applying the latest crop production technology.

The demand for food and fiber has increased in recent years. As a result, some land of marginal quality has been used for crops. Much of this land is more susceptible to erosion than the more productive land. In addition, the number of residential tracts has increased throughout the county. These tracts commonly are in areas of prime farmland. If these trends continue, they could result in a significant decline in the quality and quantity of the land used for food and fiber.

The major soil management concerns affecting cropland in the county are water erosion, excessive permeability, surface crusting, poor tilth, wetness, ponding, restricted permeability, and droughtiness. The major management concerns affecting pastureland are water erosion, soil fertility, low available water capacity, low pH, and equipment limitations.

Soil erosion can be a problem on soils that have slopes of more than 2 percent, such as Menfro, Drury, Winfield, and Hosmer soils.

Loss of the surface layer is damaging for several reasons. Soil productivity is reduced as the surface soil is removed and part of the subsoil is incorporated into the plow layer. The subsoil is generally lower in plant nutrients, lower in organic matter, and higher in clay content compared to the surface soil. As the content of organic matter decreases and clay content increases in the plow layer, soil tilth deteriorates, resulting in soil crusting and reduced rates of water intake. Soil erosion results in the sedimentation of streams, rivers, road ditches, and lakes. Sediment pollution reduces water quality for agricultural, municipal, and recreational uses and for fish and wildlife. Removing the sediment generally is expensive. Erosion control helps to minimize this pollution and improves water quality.

Erosion-control measures on cropland include both cultural and structural practices. The most widely used practice in the county is conservation tillage, such as mulch tillage and zero tillage. These systems can leave 30 to 90 percent of the surface covered with crop residue. Another cultural practice is a crop rotation that includes 1 or more years of close-growing grasses or legumes. If slopes are long and uniform, terraces and contour farming are also effective in controlling erosion.

Structural practices are needed in drainageways where concentrated runoff flows overland. Soil erosion can be controlled by establishing grassed waterways or constructing erosion-control structures.

Measures that are effective in controlling water erosion on pasture include establishing or renovating stands of legumes and grasses. Controlling erosion during seedbed preparation is a major concern. If the soil is tilled for the reseeding of pasture or hay crops, planting winter cover crops, establishing grassed waterways, farming on the contour, and using a system of conservation tillage that leaves a protective cover of crop residue on the surface can help to minimize erosion.

Further information about erosion-control measures suitable for each kind of soil is provided in the "Field Office Technical Guide," which is available at the local office of the Natural Resources Conservation Service.

Soils with excessive permeability, such as Cairo and Bowdre soils, have the

Figure 5.—A view of a soybean field in the Mississippi River Bottoms, just north of Running Lake. The soils in this area are Cairo, Jacob, and Cape.

potential for ground-water contamination. These soils contain sandy deposits within a depth of 40 inches and are very rapidly permeable in the lower part of the profile.

There are several measures that can limit the amount of deep leaching of nutrients and pesticides. Applications of fertilizer should be based on soil tests. The local office of the Cooperative Extension Service can help in determining the kinds and proper amounts of nutrients needed. Chemicals should be selected based on their solubility in water, their ability to bind with the soil, and the rate of their breakdown in the soil. Splitting chemical applications, particularly nitrogen, is beneficial. This practice reduces the chance for excessive leaching from a one time application. Another measure is planting legumes in a crop rotation or as a cover crop. This adds nitrogen to the soil, thereby reducing the amount of nitrogen needed in chemical applications. The practice of crop rotation is also effective in limiting the build-up of weed and insect populations. This in turn reduces the amount of herbicides and insecticides needed per application. The use of small grain cover crops following fertilized corn crops also can be effective in taking up some residual nitrogen from the soil.

Low fertility levels affect the health and vigor of the plants and thus have a direct impact on the quantity and quality of livestock produced. Additions of fertilizers and other organic material should be based on the results of soil tests, on the needs of specific plant species, and on the desired level of production.

Soils that have low pH, or low reaction, have a pH value equal to or less than 5.5 in the surface layer. Low soil reaction inhibits the uptake of certain nutrients by the plants or accelerates the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. Applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific grass, legume, or combination of grasses and legumes.

Surface drainage systems, such as shallow surface ditches, have been installed in most areas of poorly drained and somewhat poorly drained soils used as cropland in the major bottomland areas in Union County. As a result, these soils are adequately drained for the crops commonly grown. Measures that maintain the drainage system are needed. Poorly drained soils, such as Piopolis and Darwin soils, and somewhat poorly drained soils, such as Wakeland and Tice soils, have surface drainage.

Soil tilth is an important factor influencing the germination of seeds, the amount of runoff, and the rate of water infiltration. Soils that have good tilth are granular and porous and have a high organic matter content.

Surface crusting can be a problem in areas of Hosmer, Stoy, Menfro, and Winfield soils, which have a surface layer of silt loam that is low in organic matter content. Generally, the structure of these soils is weak, and a crust forms on the surface during periods of intense rainfall. This crust is hard when dry. It inhibits seedling emergence, reduces the infiltration rate, and increases runoff and erosion. Regular additions of crop residue, manure, and other organic material improve soil structure and minimize crusting.

Poor tilth is also a problem on soils that have a surface layer of silty clay loam or silty clay. If poorly drained soils, such as Jacob and Darwin soils, are plowed when wet, their surface layers become cloddy. The cloddiness hinders the preparation of a good seedbed. Tilling in the fall and leaving the soil surface rough with moderate amounts of crop residue generally result in good tilth in the spring. A system of strip or ridge tillage may also work well on these soils.

Overgrazing or grazing when the soil is wet reduces the extent of plant cover and results in surface compaction and poor tilth, and thus it increases the susceptibility to erosion. Proper stocking rates, rotation grazing, and timely deferment of grazing, especially during wet periods, help to keep the pasture in good condition. The proper location of livestock watering facilities helps to prevent surface compaction or the

formation of ruts by making it unnecessary for cattle to travel long distances up and down the steep slopes.

Restricted permeability can increase a soil's susceptibility to erosion. As water movement slows within a soil, the chance for runoff increases. Very slowly permeable Hosmer soils have a higher soil erodibility potential than moderately permeable Menfro soils. The effect that restricted permeability has on the erosion hazard can be controlled by applying a cropping system that leaves crop residue on the surface after planting, by incorporating green manure crops or crop residue into the soil, and by using conservation cropping systems.

A low available water capacity limits the productivity of some soils used for crops in the county. The physical composition of these soils, such as Sarpy soils, limits the amount of available water necessary for optimum plant growth. The effects of droughtiness in these soils can be minimized by reducing the amount of runoff and by increasing the soil's water-holding capacity. Using a conservation tillage system and returning crop residue and other organic material to the soil help to overcome droughtiness. Planting such crops as winter wheat can help to avoid the drought-prone season. In addition, irrigation helps to overcome droughtiness.

Available water capacity is low when it is a weighted average of less than 0.10 inch of water per inch of soil within a depth of 40 inches or when it is a weighted average of less than 3 inches in the root zone if the root zone is less than 40 inches thick. Available water capacity refers to the capacity of soils to hold water available for use by most plants. The quality and quantity of the pasture may be reduced if the available water is inadequate for the maintenance of a healthy community of desired pasture species and thus the desired number of livestock. A poor-quality pasture may increase the hazard of erosion and increase the runoff of pollutants. Planting drought-resistant species of grasses and legumes helps to establish a cover of vegetation. Irrigation may be needed.

Hay is a very important crop in Union County for dairy and beef producers and for people who own small acreages and have horses for recreational purposes. The horse racing industry provides an additional market for hay. There are few permanent hay fields in the county, and a vast majority of producers rotate their hay seeding between 1 to several years of row crops, such as corn and soybeans.

Proper management is needed on hayland to prolong the life of desirable forage species, to maintain or improve the quality and quantity of forage, and to control erosion and minimize runoff. Hay may last as a vigorous crop for 4 or 5 years, depending on management and on the varieties seeded. Suitable hay plants include several legumes and cool-season grasses. Alfalfa is the most commonly grown legume for hay. It is often used in mixtures with smooth bromegrass and orchardgrass. Alfalfa is best suited to well drained soils, such as Menfro and Drury soils. Red clover is also grown for hay. Measures that maintain or improve fertility are needed. The amount of lime and fertilizer to be added to the soil should be based on the results of soil tests, the needs of the plants, and the expected level of yields. Seed varieties should be selected in accordance with the soil properties and the drainage conditions of the tract of land.

In areas where slopes are 10 percent or more, the operation of farm equipment may be restricted. In areas where the soils have more than 15 percent gravel in the surface layer, seedbed preparation and renovation practices may be hindered. The cobbles and stones can be removed or piled in a corner of the field.

Management Concerns for Cropland and Pastureland

The management concerns affecting the use of the detailed soil map units in the survey area for cropland and pastureland are shown in table 5. The main concerns in managing cropland are controlling water erosion, soil wetness, and ponding;

minimizing surface crusting; improving poor tilth; and limiting the effects of excessive and restricted permeabilities and the low available water capacity. The main concerns in managing pasture are controlling water erosion, improving or maintaining soil fertility, overcoming the low available water capacity, low pH, and equipment limitations. Growing legumes, cool-season grasses, and warm-season grasses that are suited to the soils and the climate of the area helps to maintain a productive stand of pasture.

Generally a combination of several practices is needed to control *water erosion*. Conservation tillage, stripcropping, contour farming, conservation cropping systems, crop residue management, diversions, and grassed waterways help to reduce excessive soil loss on cropland.

Water erosion reduces the productivity of pastureland. It also results in onsite and offsite sedimentation, causes water pollution by sedimentation, and increases the runoff of livestock manure and other added nutrients.

Wetness is a limitation in some areas, and *ponding* is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, or a combination of these. Measures that maintain the drainage system are needed.

Practices that reduce *crusting* of the surface and improve *soil tilth* include incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage. Surface cloddiness can be controlled by avoiding tillage when the soil is too wet.

Excessive permeability can cause deep leaching of nutrients and pesticides. Selecting appropriate chemicals and using split application methods reduce the hazard of ground-water contamination.

Restricted permeability can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems.

Conserving moisture is needed where the soils have a *limited available water capacity*. It primarily involves reducing the evaporation and runoff rates and increasing the water intake rate. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Limitations and hazards are as follows:

Depth to bedrock.—Rooting depth and available moisture may be limited by bedrock within a depth of 30 inches.

Flooding.—Winter small grain crops can be damaged. Tilling and planting should be delayed in the spring until flooding is no longer a hazard.

Wind erosion.—Using a system of conservation tillage that leaves crop residue on the surface after planting and keeping the surface rough help to control this hazard.

Crusting.—The average organic matter content in the surface layer is less than 2.5 percent, and the clay content is more than 20 percent.

Equipment limitation.—The slope of the map unit is more than 18 percent.

Excess lime.—The economic feasibility of adding a specific amount of calcium carbonate to a soil in order to maintain a desired level of fertility needs to be considered.

Excessive permeability.—The upper limit of the permeability range is 6 inches or more within the soil profile.

Frost heave.—The soil is poorly drained.

High pH.—The pH is more than 8.4 between the depths of 0 and 40 inches.

Limited available water capacity.—The weighted average of the available water capacity between the depths of 0 and 40 inches is 0.1 inch or less.

Low fertility.—Percent organic matter is less than 0.5 and/or the cation-exchange capacity to clay ratio is less than 0.16 in the surface layer.

Low pH.—The pH is less than 4.5 between the depths of 0 and 40 inches.

Ponding.—A water table is above the surface.

Poor tilth.—The component of the map unit has 27 percent or more clay in the surface layer.

Restricted permeability.—Permeability is less than 0.2 inch per hour between the depths of 0 and 40 inches.

Root-restrictive layer.—Any physical or chemical property within a soil profile that inhibits or limits the growth of roots.

Surface rock fragments.—Rocks on the soil surface impede the mechanical manipulation of the soil.

Very excessive lime.—The economic feasibility of adding a specific amount of calcium carbonate to a soil in order to maintain a desired level of soil fertility needs to be considered.

Water erosion.—The surface K factor multiplied by the slope is greater than 0.8, and the slope is 3 percent or more.

Wetness.—The component of the map unit has a water table within a depth of 1.5 feet.

Land Capability and Yields per Acre of Cropland and Pasture

The average yields per acre that can be expected of the principal crops and pasture plants under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered. The yields in this soil survey represent high levels of management and are from the University of Illinois *(18)*.

The management needed to obtain the indicated yields of the various crops and pasture plants depends on the kind of soil and the plant species. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding plant varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each species; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops and pasture plants. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops and pasture plants other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. The capability classification of map units in the survey area is given in table 6. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in

grouping the soils do not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland or for engineering purposes.

In the capability system, soils generally are grouped at three levels—capability class, subclass, and unit *(27)*. These categories indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, small grain, cotton, hay, and field-grown vegetables. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use.

If properly managed, soils in classes 1, 2, 3, and 4 are suitable for the mechanized production of commonly grown field crops and for pasture and woodland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class 1 to class 4. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes 5, 6, and 7 are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class 5 to class 7. Areas in class 8 are generally not suitable for crops, pasture, or woodland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

Capability subclasses identify the dominant kind of limitation in the class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class 1 because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use mainly to pasture, woodland, wildlife habitat, or recreation.

Prime Farmland

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or

for other purposes. They either are used for food and fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity and the content of salts and sodium are acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils that have a zone high in the profile in which the soil moisture status is wet or soils that are subject to flooding may qualify as prime farmland where these limitations are overcome by drainage measures or flood control. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

The map units in the survey area that meet the requirements for prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the table, measures that overcome limitations are needed. The need for these measures is indicated in parentheses after the map unit name. The location of each map unit is shown on the detailed soil maps. The soil qualities that affect use and management are described in the section “Detailed Soil Map Units.”

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology *(4, 15, 20, 21)*. Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part *(8)*. These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established *(9)*. These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria

used are selected estimated soil properties that are described in “Soil Taxonomy” *(25)* and “Keys to Soil Taxonomy” *(24)* and in the “Soil Survey Manual” *(29)*.

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” *(26)*.

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site *(15, 26)*.

1334A Birds silt loam, undrained, 0 to 2 percent slopes, frequently flooded
1426A Karnak silty clay, undrained, 0 to 2 percent slopes, frequently flooded
3071A Darwin silty clay, 0 to 2 percent slopes, frequently flooded
3071L Darwin silty clay, 0 to 2 percent slopes, frequently flooded, long duration
3092BL Sarpy loamy fine sand, 1 to 8 percent slopes, frequently flooded, long duration
3162L Gorham silty clay loam, 0 to 3 percent slopes, frequently flooded, long duration
3288A Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded
3331A Haymond silt loam, 0 to 3 percent slopes, frequently flooded
3334A Birds silt loam, 0 to 2 percent slopes, frequently flooded
3426A Karnak silty clay, 0 to 2 percent slopes, frequently flooded
3590L Cairo silty clay, 0 to 2 percent slopes, frequently flooded, long duration
3682BL Medway silty clay loam, 1 to 6 percent slopes, frequently flooded, long duration
8071A Darwin silty clay, 0 to 2 percent slopes, occasionally flooded
8085A Jacob silty clay, 0 to 2 percent slopes, occasionally flooded
8162A Gorham silty clay loam, 0 to 3 percent slopes, occasionally flooded
8334A Birds silt loam, 0 to 2 percent slopes, occasionally flooded
8420A Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded
8422A Cape silty clay loam, 0 to 2 percent slopes, occasionally flooded
8426A Karnak clay, 0 to 2 percent slopes, occasionally flooded
8590A Cairo silty clay, 0 to 2 percent slopes, occasionally flooded

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

3180A Dupo silt loam, 0 to 2 percent slopes, frequently flooded
3331A Haymond silt loam, 0 to 3 percent slopes, frequently flooded

Figure 6.—Lyerle Lake with cypress trees in the foreground. The surrounding soils are the occasionally flooded and ponded Karnak soils.

3333A Wakeland silt loam, 0 to 2 percent slopes, frequently flooded
3456B Ware fine sandy loam, 1 to 6 percent slopes, frequently flooded
8180A Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
8284A Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded
8333A Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded
8682B Medway silty clay loam, 1 to 6 percent slopes, occasionally flooded

Forestland Management

In table 8, parts I, II, and III, interpretive ratings and information are given for various aspects of forest management.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice (fig. 6). *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Some rating class terms indicate the degree of limitation that restricts the use of a soil for a specific purpose. A *slight* rating is given to soils that have properties favorable for the use. Good performance and low maintenance can be expected. A *moderate* rating is given to soils that have properties that are moderately favorable for

the use, and the limitation can be overcome or modified by special planning, design, or maintenance. The expected performance is somewhat less desirable than for soils rated slight. A *severe* rating is given to soils that have one or more properties unfavorable for the rated use. This degree of limitation generally requires major soil reclamation, special design, or intensive maintenance.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the “National Forestry Manual,” which is available at the local office of the Natural Resources Conservation Service or on the Internet.

For limitations affecting *construction of haul roads and major skid trails*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of slight indicates that no significant limitations affect construction activities, moderate indicates that one or more limitations can cause some difficulty in construction, and severe indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited.

The ratings of *suitability of equipment operability for logging areas* are based on slope, landscape stability, water table duration, stoniness, boulder content, soil texture, and flooding. The soils are described as well suited, moderately suited, or poorly suited.

The ratings for *suitability for mechanized site preparation* are based on soil erodibility, soil texture, soil depth, drainage, water table duration, flooding, and the amount of cobbles, stones, or boulders on the surface. The soils are described as well suited, moderately suited, or poorly suited.

For *limitations affecting prescribed burning*, the ratings are based on slope, soil texture, drainage class, and rooting depth. Soils rated slight have few limitations that affect the reestablishment of vegetation. Soils that have moderate limitations require post-burning practices to achieve the desired results. Soils that have severe limitations require post-burning practices to achieve the desired erosion control.

Ratings in the column *erosion hazard on roads and trails* are based on the soil erodibilty factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of slight indicates that little or no erosion is likely; moderate indicates that some erosion is likely, that the roads or trails may require occasional maintenance, or that simple erosion-control measures are needed; and severe indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited.

Forest Productivity

Information about the potential productivity of map unit components for merchantable or common trees is provided in table 9. The four common tree species

are white oak, northern red oak, eastern cottonwood, and pin oak. Site indices are listed for soils where the species are commonly grown. The site indices in this soil survey are from the University of Illinois *(17)*.

The *potential productivity* of a component is expressed as a site index. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not originally support trees. Knowledge of how trees perform on such land can be gained only by observing and recording the performance of trees that have been planted and have survived. Many popular windbreak species are not indigenous to the areas in which they are planted.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters, a tree or shrub may grow well or grow poorly, depending on the characteristics of the soil. Each tree or shrub has definable potential heights in a given physiographic area and under a given climate. Accurate definitions of potential heights are necessary when a windbreak is planned and designed.

Table 10 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in this table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service or from a nursery.

Recreation

The soils in the survey area are rated in table 11 according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be

overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in table 11 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Wildlife Habitat

Union County provides a variety of habitat for wildlife, including forests, pastureland, extensive bottomland areas, bluffs, and wetlands. The wildlife is also varied. There are populations of white-tailed deer, red-tailed hawks, bald eagles, wild turkey, snakes, gray squirrels, rabbits, bobwhite quail, and furbearers and many other nongame birds, mammals, amphibians, and reptiles. Wetland areas and streams support waterfowl, wading birds, shore birds, mink, muskrat, and a few river otters. Local conservation officials can assist in the selection of plants and the planning of wildlife habitat areas.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting the appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 12, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, sorghum, and soybeans.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, orchardgrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, ragweed, beggarweed, broomsedge, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins,

twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated good are Russian-olive, autumn olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, cattail, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this

section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 13, parts I and II, show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without

basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 14, parts I and II, show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and

the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill,* solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 15, parts I and II, give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is an unlikely source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair,* or poor as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the

soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 16, parts I, II, and III, give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

This table also gives for each soil the restrictive features that affect grassed waterways and surface drains, terraces and diversions, tile drains and underground outlets, and irrigation.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect the performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than

5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Grassed waterways and surface drains are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Tile drains and underground outlets remove excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Sprinkler irrigation is a method of irrigation in which water is pumped through nozzles and sprayed, or sprinkled, through the air to the ground surface.

Drip irrigation is a method of irrigation in which water is applied to the soil surface as drops or small streams through emitters.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in the tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 17 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified

as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 18 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 18, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. The estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. The estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is

measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 18, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 18 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 19 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 19, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have a pH of less than 5.5.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Figure 7.—Rendleman Slough. This area consists of ponded Karnak soils that were converted to permanent wetland by the Wetland Restoration Program (WRP).

Water Features

Table 20 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations (fig. 7).

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group, the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 20 indicates, by month, depth to the top *(upper limit)* and base *(lower limit)* of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of

the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Also indicated in the table is the kind of water table. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places, an upper, or perched, water table is separated from a lower one by a dry zone.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 20 indicates *surface water depth* and the *duration* and *frequency* of *ponding*. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 21 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen

layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(24, 25)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 22 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud,* meaning humid, plus *alf,* from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl,* meaning simple, plus *udalf,* the suborder of the Alfisols that has an udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Typic Hapludalfs.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each

series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” *(29)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(25)* and in “Keys to Soil Taxonomy” *(24)*. Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section “Detailed Soil Map Units.”

Banlic Series

Taxonomic classification: Coarse-silty, mixed, active, acid, mesic Fragic Epiaquepts

Typical Pedon

Banlic silt loam; in Perry County, Illinois; on a nearly level step of a flood plain, in an idle field, at an elevation of about 395 feet above mean sea level, approximately 2 miles southeast of Pinckneyville, about 226 feet north and 484 feet west of the center of sec. 31, T. 5 S., R. 2 W.; USGS Pyatts, IL topographic quadrangle; lat. 38 degrees 2 minutes 50 seconds N. and long. 89 degrees 21 minutes 50 seconds W.; UTM Zone 16, Easting 292569, Northing 4213484, NAD 27.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine and medium granular structure; friable; few very fine and fine roots; few fine iron-manganese concretions; slightly alkaline; abrupt smooth boundary.

A—5 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure; friable; few very fine and fine roots; many fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine iron-manganese concretions; neutral; abrupt smooth boundary.

E—8 to 13 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak fine and medium subangular blocky structure; friable; few very fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine iron-manganese concretions; very strongly acid; clear smooth boundary.

Bw—13 to 21 inches; brown (10YR 6/3) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine iron-manganese concretions; very strongly acid; clear smooth boundary.

Bx1—21 to 27 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; firm; few very fine roots; common prominent white (10YR 8/1, dry) clay depletions on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine iron-manganese concretions; brittle; very strongly acid; clear smooth boundary.

Bx2—27 to 38 inches; brown (10YR 5/3) silt loam; moderate medium prismatic structure parting to weak medium subangular blocky; firm; few very fine roots; common prominent white (10YR 8/1, dry) clay depletions on faces of peds; common medium faint light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine iron-manganese concretions; brittle; very strongly acid; clear smooth boundary.

BCg—38 to 55 inches; light brownish gray (10YR 6/2) silt loam; weak coarse subangular blocky structure; friable; few very fine roots; few distinct white

(10YR 8/1, dry) clay depletions on faces of peds; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; common medium iron-manganese concretions; very strongly acid; gradual smooth boundary.

Cg—55 to 80 inches; variegated 50 percent light brownish gray (10YR 6/2) and 50 percent yellowish brown (10YR 5/4) silt loam; massive; friable; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many fine iron-manganese concretions; slightly acid.

Range in Characteristics

Depth to the top of the C horizon: 45 to 65 inches
Depth to the fragic soil properties: 15 to 36 inches
Particle-size control section: Average of 12 to 18 percent clay and less than 15 percent sand

Ap or A horizon:
Hue—10YR
Value—3 to 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam or silt

E horizon:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—2 or 3
Texture—silt loam

Bg or Bw horizon:
Hue—10YR
Value—5 or 6
Chroma—2 or 3
Texture—silt loam

Bx horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 to 4
Texture—silt loam or silt

BCg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam or silt

Cg or C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

Baxter Series

Taxonomic classification: Fine, mixed, semiactive, mesic Typic Paleudalfs

Typical Pedon

Baxter gravelly silt loam; in Union County, Illinois; in a hilly wooded area, at an

elevation of about 428 feet above sea level, approximately 1/2 mile south-southeast of Dongola, about 2,000 feet south of the center of sec. 25, T. 13 S., R. 1 W.; USGS Dongola, IL topographic quadrangle; lat. 37 degrees 21 minutes 3 seconds N. and long. 89 degrees 11 minutes 58 seconds W.; UTM Zone 16, Easting 305182, Northing 4135851, NAD 27.

A—0 to 2 inches; brown (10YR 4/3) gravelly silt loam; weak and moderate fine granular structure; friable; 30 percent rock fragments; moderately acid; clear smooth boundary.

E1—2 to 7 inches; pale brown (10YR 6/3) gravelly silt loam; weak fine granular structure; friable; 20 percent rock fragments; strongly acid; gradual smooth boundary.

E2—7 to 15 inches; light yellowish brown (10YR 6/4) extremely gravelly silt loam; weak fine granular structure; very friable; 40 percent rock fragments; very strongly acid; clear wavy boundary.

Bt1—15 to 22 inches; yellowish red (5YR 5/6) very gravelly silty clay loam; moderate fine subangular blocky structure; firm; many prominent red (2.5YR 4/6) clay films on faces of peds; 40 percent rock fragments; very strongly acid; gradual wavy boundary.

Bt2—22 to 35 inches; red (2.5YR 4/8) gravelly silty clay; moderate fine angular blocky structure; very firm; many distinct red (2.5YR 4/6) clay films on faces of peds; common medium distinct reddish yellow (5YR 6/6) masses of iron accumulation; 25 percent rock fragments; very strongly acid; gradual wavy boundary.

Bt3—35 to 43 inches; red (2.5YR 4/8) gravelly silty clay; weak medium angular blocky structure; very firm; many distinct red (2.5YR 4/6) clay films on faces of peds; 15 percent rock fragments; very strongly acid; gradual wavy boundary.

Bt4—43 to 57 inches; red (2.5YR 4/8) gravelly clay; moderate medium angular blocky structure; very firm; many distinct red (2.5YR 4/6) clay films on faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; few fine prominent white (7.5YR 8/1) iron depletions; 20 percent rock fragments; very strongly acid; gradual wavy boundary.

Bt5—57 to 80 inches; red (2.5YR 4/8) very gravelly clay; moderate medium angular blocky structure; very firm; few distinct red (2.5YR 4/6) clay films on faces of peds; many medium prominent reddish yellow (7.5YR 6/6) masses of iron accumulation; 40 percent rock fragments; very strongly acid.

Range in Characteristics

Depth to bedrock: 60 to more than 120 inches

Content of rock fragments: 5 to 45 percent chert fragments in individual layers; average in the particle-size control section ranges from 15 to 35 percent

Depth to the base of the argillic horizon: 58 to more than 120 inches

Particle-size control section: Average of 35 percent clay, 5 to 19 percent sand, and 15 to 35 percent chert fragments

A or Ap horizon:

Hue—7.5YR or 10YR
Value—2 to 4 (4 to 6 dry)
Chroma—2 to 4
Fine-earth texture—silt loam

E horizon:

Hue—7.5YR or 10YR
Value—4 to 6 (5 to 7 dry)
Chroma—2 to 4
Fine-earth texture—silt loam

Bt horizon (upper part) and BA or BE horizon (if it occurs):
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 6
Fine-earth texture—silty clay loam

Bt horizon (lower part):
Hue—10R to 2.5YR
Value—3 to 5
Chroma—4 to 8
Fine-earth texture—clay or silty clay

Birds Series

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

Typical Pedon

Birds silt loam; in Madison County, Illinois; in a nearly level area of a cultivated field, at an elevation of about 445 feet above mean sea level, approximately 3 miles southeast of Troy, about 80 feet north and 2,000 feet west of the center of sec. 24, T. 3 N., R. 7 W.; USGS St. Jacob, IL topographic quadrangle; lat. 38 degrees 41 minutes 37 seconds N. and long. 89 degrees 50 minutes 5 seconds W.; UTM Zone 16, Easting 253345, Northing 4286215, NAD 27.

Ap—0 to 8 inches; dark gray (10YR 4/1) silt loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; common very fine roots; thin lenses of gray (10YR 6/1) silt grains along faces of peds; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Cg1—8 to 13 inches; gray (5Y 5/1) silt loam; massive with weak thick platy stratification planes; friable; few very fine roots; few very fine and fine continuous tubular pores; common medium prominent dark reddish brown (5YR 3/3) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Cg2—13 to 19 inches; stratified very dark gray (5Y 3/1) and dark gray (5Y 4/1) silt loam; massive; firm; few very fine roots; common very fine and fine continuous tubular pores; common medium prominent dark reddish brown (5YR 3/4) masses of iron accumulation in the matrix; few medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; slightly acid; abrupt smooth boundary.

Cg3—19 to 39 inches; gray (5Y 6/1) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; many medium prominent yellowish red (5YR 4/6) and yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; moderately acid; clear smooth boundary.

Cg4—39 to 63 inches; variegated light brownish gray (2.5Y 6/2) and light gray (10YR 7/1) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; many medium prominent yellowish brown (10YR 5/8) and few medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear boundaries; strongly acid; gradual smooth boundary.

Cg5—63 to 78 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common fine distinct light gray (10YR 7/1) iron depletions and few medium prominent yellowish brown (10YR

5/8) and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (10YR 2/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; moderately acid; clear smooth boundary.

2Btgb—78 to 90 inches; dark gray (2.5Y 4/1) silt loam; moderate fine prismatic structure parting to weak fine and medium angular blocky; firm; few very fine and fine vesicular and tubular pores; common distinct very dark gray (2.5Y 3/1) organo-clay films on vertical faces of peds; few prominent dark reddish brown (5YR 2.5/2) iron-manganese coatings lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (5YR 2.5/1) iron-manganese nodules with clear yellowish red (5YR 4/6) boundaries; slightly acid.

Range in Characteristics

Particle-size control section: Average of 18 to 27 percent clay and less than 15 percent fine or coarser sand

Depth to a buried soil (if it occurs): More than 40 inches

Ap, A, or ACg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Cg horizon (to a depth of 40 inches):
Hue—10YR, 2.5Y, or 5Y
Value—3 to 7
Chroma—1 or 2
Texture—silt loam

Cg horizon (below a depth of 40 inches):
Hue—10YR, 2.5Y, or 5Y
Value—3 to 7
Chroma—1 or 2
Texture—silt loam

2Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 or 2
Texture—typically silt loam; strata of silty clay loam, clay loam, loam, or sandy loam occur in some pedons

Bowdre Series

Taxonomic classification: Clayey over loamy, smectitic, thermic Fluvaquentic Hapludolls

Typical Pedon

Bowdre silty clay, 1 to 6 percent slopes, occasionally flooded; in Union County, Illinois; in an undulating area in a cultivated field, on a ridge along sloughs and overflow channels on the Mississippi River flood plain, at an elevation of about 445 feet above mean sea level, approximately 5 miles northwest of Wolf Lake, about 200 feet south and 335 feet east of the northwest corner of sec. 24, T. 11 S., R. 4 W.; USGS Neely's Landing, IL-MO topographic quadrangle; lat. 37 degrees 33 minutes 20 seconds N. and long. 89 degrees 30 minutes 3 seconds W.; UTM Zone 16, Easting 279089, Northing 4159265, NAD 27.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silty clay; moderate medium granular structure; firm; very dark gray (10YR 3/1) organic coatings on faces of peds; few fine tubular wormcasts; many fine roots; neutral; abrupt smooth boundary.

A—5 to 11 inches; very dark grayish brown (10YR 3/2) silty clay; moderate fine and moderate medium angular blocky structure; very firm; few fine tubular wormcasts; common fine roots; few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation; neutral; abrupt wavy boundary.

Bw1—11 to 17 inches; brown (10YR 4/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few faint dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few very dark gray (10YR 3/1) clay films on surfaces of vesicular and tubular wormcasts; common roots; few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation; slightly acid; clear smooth boundary.

2Bw2—17 to 23 inches; dark brown (10YR 4/3) loam; weak coarse subangular blocky structure; friable; few faint dark gray (10YR 4/1) clay films on faces of peds; common medium faint grayish brown (2.5Y 5/2) iron depletions; common roots; slightly acid; clear smooth boundary.

2C1—23 to 42 inches; dark brown (10YR 4/3) very fine sandy loam; massive; very friable; common roots and common tubular worm tunnels with few faint dark gray (10YR 4/1) clay films; many roots; common medium faint grayish brown (2.5Y 5/2) and common fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation; neutral; clear wavy boundary.

2C2—42 to 53 inches; brown (10YR 5/3) very fine sandy loam; few thin black (10YR 2/1) strata of loam and silt loam; massive; very friable; few fine roots; common fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation; neutral; clear wavy boundary.

2C3—53 to 60 inches; 50 percent grayish brown (10YR 5/2), 35 percent dark gray (10YR 4/1), and 15 percent brown (10YR 5/3) stratified very fine sandy loam, loam, and silt loam; massive; very friable; few fine roots; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 8 to 14 inches
Depth to strongly contrasting particle-size classes in the control section: 12 to 20 inches

A or Ap horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 to 3
Fine-earth texture—silty clay, clay, or silty clay loam

BA horizon (if it occurs):
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Fine-earth texture—silty clay, clay, or silty clay loam

Bw horizon:
Hue—10YR
Value—4
Chroma—3
Fine-earth texture—silty clay, clay, or silty clay loam

2Bw horizon:
Hue—10YR

Value—4 to 6
Chroma—1 to 3
Fine-earth texture—silt loam, loam, sandy loam, or very fine sandy loam

2C horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 3
Fine-earth texture—stratified silt loam, loam, sandy loam, or very fine sandy loam; thin strata of silty material may or may not occur

Burnside Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Oxyaquic Dystrudepts

Typical Pedon

Burnside silt loam; in Johnson County, Illinois; in a nearly level to undulating area on a narrow upland flood plain, in an area of bedrock, at an elevation of about 475 feet above sea level, approximately 4 miles southeast of Vienna, about 1,280 feet east and 1,100 feet south of the center of sec. 14, T. 13 S., R. 3 E.; USGS Bloomfield, IL topographic quadrangle; lat. 37 degrees 23 minutes 18 seconds N. and long. 88 degrees 50 minutes 46 seconds W.; UTM Zone 16, Easting 336812, Northing 4138855, NAD 27.

A—0 to 4 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; few pebbles and cobbles; very strongly acid; clear smooth boundary.
E—4 to 8 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine platy structure; friable; few channers and flagstones; very strongly acid; clear smooth boundary.
Bw1—8 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine and fine granular and very weak very fine subangular blocky structure; friable; few channers and flagstones; very strongly acid; abrupt smooth boundary.
2Bw2—17 to 33 inches; dark yellowish brown (10YR 4/4) extremely flaggy loam; weak fine subangular blocky structure; friable; some light yellowish brown (10YR 6/4) clay depletions; about 75 percent of this layer is particles larger than 2 mm in diameter and consists of flagstones, channers, cobbles, and gravel and some iron-manganese concretions; strongly acid; clear smooth boundary.
2C—33 to 57 inches; dark yellowish brown (10YR 4/4) extremely flaggy loam; massive; friable; some light yellowish brown (10YR 6/4) clay depletions; about 80 percent of this layer is particles larger than 2 mm in diameter and consists of flagstones, channers, cobbles, and gravel and some iron-manganese concretions; somewhat cemented when dry; strongly acid; abrupt smooth boundary.
2Cr—57 to 60 inches; weathered sandstone bedrock.
2R—60 inches; sandstone bedrock.

Range in Characteristics

Depth to bedrock: 40 to 80 inches
Type and content of rock fragments: Sandstone gravel, cobbles, channers, and flagstones; 0 to 35 percent, by volume, gravel and cobbles in the A and Bw1 horizons and 25 to 90 percent channers and flagstones in individual horizons of the 2Bw2 and 2C horizons; average of the control section ranges from 35 to 75 percent, by volume
Fine-earth particle-size control section: Average of 7 to 27 percent clay and 5 to 50 percent sand

A, E, and Bw horizons:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Fine-earth texture—silt loam or loam
Total content of rock fragments—0 to 35 percent gravel

2Bw horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Fine-earth texture—silt loam or loam
Total content of rock fragments—25 to 80 percent gravel, cobbles, and flagstones

2C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Fine-earth texture—loam, silt loam, or sandy loam
Total content of rock fragments—50 to 90 percent flagstones

2Cr horizon:
Texture—weathered sandstone or siltstone bedrock

2R horizon:
Texture—sandstone or siltstone bedrock

Cairo Series

Taxonomic classification: Clayey over sandy or sandy-skeletal, smectitic, thermic Vertic Endoaquolls

Typical Pedon

Cairo silty clay; in Alexander County, Illinois; in a nearly level cultivated field, north of Illinois Route 146, near the crest of a low terrace ridge, at about 333 feet above mean sea level, approximately 2 miles southeast of East Cape Girardeau, about 1,365 feet north and 620 feet west of the southeast corner of sec. 18, T. 14 S., R. 3 W.; USGS McClure, IL-MO topographic quadrangle; lat. 37 degrees 17 minutes 46 seconds N. and long. 89 degrees 28 minutes 24 seconds W.; UTM Zone 16, Easting 280774, Northing 4130369, NAD 27.

Ap—0 to 6 inches; black (10YR 2/1) silty clay, very dark gray (10YR 3/1) dry; weak fine angular blocky structure; very firm; neutral; clear smooth boundary.

A—6 to 17 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate coarse prismatic structure parting to strong medium angular blocky; very firm; continuous very dark brown (10YR 2/2) organic coats on faces of peds; common fine prominent yellowish brown (10YR 5/6) and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; black (10YR 2/1) dark organic stains; neutral; clear smooth boundary.

Bg1—17 to 30 inches; dark gray (10YR 4/1) silty clay; weak medium prismatic structure parting to moderate medium angular blocky; very firm; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine prominent yellowish brown (10YR 5/6) and yellowish red (5YR 5/8) masses of iron accumulation; neutral; clear smooth boundary.

2Bg2—30 to 32 inches; dark gray (10YR 4/1) sandy loam; weak medium angular blocky structure; firm; few small pockets of yellowish brown (10YR 5/6) loamy fine sand; many prominent strong brown (7.5YR 5/6) and yellowish red (5YR 4/8) masses of iron accumulation; slightly acid; clear smooth boundary.

2C1—32 to 35 inches; mottled yellowish brown (10YR 5/4), strong brown (7.5Y 5/6) and yellowish red (5YR 4/8) loamy fine sand; single grain; loose; slightly acid; gradual smooth boundary.

2C2—35 to 80 inches; mottled yellowish brown (10YR 5/4) and pale brown (10YR 6/3) loamy fine sand; single grain; loose; thin strong brown (7.5YR 5/8) horizontal bands; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches; epipedon extends into the B horizon in some pedons

Depth to strongly contrasting particle-size classes in the control section: 20 to 39 inches

Particle-size control section: Average of more than 40 percent clay in the A and Bg1 horizons and average of less than 20 percent clay in the 2C horizon

Depth to carbonates: Typically more than 60 inches

A or Ap horizon:
Hue—10YR or neutral
Value—2 or 3 (3 to 5 dry)
Chroma—0 to 2
Fine-earth texture—silty clay or clay
Other characteristics—the A horizon has redoximorphic features

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 5 (5 to 7 dry)
Chroma—0 or 1
Fine-earth texture—silty clay or clay
Other characteristics—horizon has redoximorphic features

2Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Fine-earth texture—silty clay loam, clay loam, sandy clay loam, sandy loam, or loam
Other characteristics—horizon has redoximorphic features

2C horizon:
Hue—commonly 10YR or 7.5YR; less commonly 5YR, 2.5Y, or neutral
Value—4 or 5
Chroma—0 to 6
Fine-earth texture—dominantly loamy fine sand, loamy sand, or fine sand; thin discontinuous bands of sandy loam, loam, silt loam, or silty clay loam occur in some pedons

The Cairo soils in Union County are considered taxadjuncts to the series because they have stratification in the upper part of the profile and do not have an abrupt textural change between the clayey and sandy layers. These differences, however, do not affect the use and management of the soils.

Cape Series

Taxonomic classification: Fine, smectitic, acid, mesic Vertic Fluvaquents

Typical Pedon

Cape silty clay loam; in Saline County, Illinois; in a nearly level or depressional area in a cultivated field, at an elevation of about 375 feet above mean sea level, approximately 2 miles southwest of Carrier Mills, about 1,290 feet north and 660 feet west of the center of sec. 10, T. 10 S., R. 5 E.; USGS Carrier Mills, IL topographic quadrangle; lat. 37 degrees 40 minutes 8 seconds N. and long. 88 degrees 38 minutes 45 seconds W.; UTM Zone 16, Easting 354839, Northing 4170155, NAD 27.

Ap—0 to 10 inches; dark gray (10YR 4/1) silty clay loam; weak medium angular blocky structure; very firm; neutral; abrupt smooth boundary.

Bg1—10 to 22 inches; dark gray (10YR 4/1) silty clay loam; moderate coarse prismatic structure parting to weak medium angular blocky; very firm; common medium distinct dark brown (10YR 4/3) masses of iron accumulation; common prominent threadlike iron-manganese masses; strongly acid; clear smooth boundary.

Bg2—22 to 28 inches; gray (10YR 5/1) silty clay; weak coarse prismatic structure parting to weak medium angular blocky; very firm; common medium distinct dark brown (10YR 4/3) masses of iron accumulation; prominent threadlike iron-manganese masses on surfaces along root channels; strongly acid; clear smooth boundary.

Bg3—28 to 35 inches; gray (10YR 5/1) and dark gray (10YR 4/1) silty clay; weak coarse prismatic structure parting to weak medium and coarse angular blocky; very firm; common medium prominent dark reddish brown (5YR 3/3) masses of iron accumulation; few prominent threadlike iron-manganese masses on surfaces along root channels; strongly acid; clear smooth boundary.

Bg4—35 to 45 inches; gray (10YR 5/1) and grayish brown (10YR 5/2) silty clay; weak coarse angular blocky structure; firm; common medium distinct pale brown (10YR 6/3) and dark grayish brown (10YR 4/2) masses of iron accumulation; common prominent threadlike iron-manganese masses; strongly acid; gradual smooth boundary.

Cg—45 to 80 inches; gray (10YR 6/1), light gray (10YR 7/1), and grayish brown (10YR 5/2) silty clay loam; massive; firm; common medium distinct pale brown (10YR 6/3) masses of iron accumulation; common prominent threadlike iron-manganese masses on surfaces along root channels; strongly acid.

Range in Characteristics

Depth to the base of the cambic horizon: 35 to 50 inches
Particle-size control section: Average of 40 to 55 percent clay

Ap or A horizon:
Hue—10YR or 2.5Y
Value—4 or 5 (5 or 6 dry)
Chroma—1 or 2
Fine-earth texture—silty clay loam, silty clay, or clay

B horizon (upper part):
Hue—10YR or 2.5Y
Value—4 to 6 (5 to 7 dry)
Chroma—0 to 2
Fine-earth texture—silty clay loam, silty clay, or clay
Other characteristics—horizon has redoximorphic features

B horizon (lower part):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—0 to 2
Fine-earth texture—silty clay or clay
Other characteristics—horizon has redoximorphic features

C horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—0 to 2
Fine-earth texture—silty clay loam or clay
Other characteristics—horizon has redoximorphic features

Clarksville Series

Taxonomic classification: Loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults

Typical Pedon

Clarksville gravelly silt loam; in Hardin County, Illinois; in a steep or very steep wooded area in the uplands, at an elevation of about 530 feet above mean sea level, approximately 1 mile west of Hicks Dome, about 825 feet south and 550 feet west of the center of sec. 25, T. 11 S., R. 7 E.; USGS Herod, IL topographic quadrangle; lat. 37 degrees 31 minutes 53 seconds N. and long. 88 degrees 23 minutes 18 seconds W.; UTM Zone 16, Easting 377342, Northing 4154509, NAD 27.

Oi—0 to $^{1}/_{2}$ inch; very dark brown (10YR 2/2) organic and silty material; densely matted roots; strongly acid; abrupt smooth boundary.
A—$^{1}/_{2}$ inch to $1^{1}/_{2}$ inches; very dark brown (10YR 2/2) gravelly silt loam; weak medium crumb structure; friable; very strongly acid; abrupt smooth boundary.
E1—$1^{1}/_{2}$ to 5 inches; 60 percent mixed dark grayish brown (10YR 4/2) and 40 percent brown (10YR 5/3) gravelly silt loam; massive; friable; few fine pores; very strongly acid; clear smooth boundary.
E2—5 to 10 inches; yellowish brown (10YR 5/4) very gravelly silt loam; weak very fine subangular blocky structure in interstices between chert fragments; friable; root or worm channels coated with grayish brown (10YR 5/2) material; common fine pores; very strongly acid; clear smooth boundary.
E3—10 to 16 inches; yellowish brown (10YR 5/4) very gravelly silt loam, very pale brown (10YR 7/3) dry; weak very fine to fine subangular blocky structure in interstices between chert fragments; friable; few brown (7.5YR 4/4) coatings of silty clay on chert fragments; yellowish red (5YR 4/8) material on interior of chert fragments; very strongly acid; clear wavy boundary.
2EB—16 to 26 inches; yellowish brown (10YR 5/4) very gravelly silt loam and yellowish red (5YR 4/8) very gravelly silty clay loam to very gravelly silty clay, light gray to very pale brown (10YR 7/2 to 8/2) dry; moderate fine to very fine angular blocky structure in a few places where rock interstices are large enough to allow structure; very firm; silty part is friable when crushed; strong brown (7.5YR 5/6) and yellowish red (5YR 5/6, dry) clay films; very strongly acid; gradual smooth boundary.
2Bt1—26 to 36 inches; yellowish red (5YR 5/6) very gravelly silty clay, very pale brown (10YR 7/3 and 7/4) dry; medium to strong fine to very fine angular blocky structure in interstices large enough to allow structure; very firm; many prominent dusky red (2.5YR 4/4) to dark red (2.5YR 3/6) clay films on faces of peds; yellowish red (5YR 4/6 and 5/6, dry) clay films; common fine distinct pinkish gray

(7.5YR 6/2) iron depletions in interstices of fractured cherty rock; strongly acid; gradual smooth boundary.

2Bt2—36 to 80 inches; alternate soft and hard chert layers; yellowish red (5YR 5/6) and strong brown (7.5YR 5/6) silty clay in fracture planes; yellowish red (5YR 5/6) and reddish yellow (7.5YR 7/6, dry) in matrix; medium to strong fine to very fine angular blocky structure in interstices large enough to allow structure; very firm; reddish brown (2.5YR 4/4, dry) clay films on faces of peds and chert fragments; strongly acid.

Range in Characteristics

Depth to bedrock: More than 80 inches
Depth to the top of the argillic horizon: 7 to 40 inches
Particle-size control section: Average of 18 to 35 percent clay, 5 to 20 percent sand, and 35 to 70 percent rock fragments

A horizon:
Hue—10YR
Value—2 to 6
Chroma—1 to 4
Fine-earth texture—silt loam or silt
Total content of rock fragments—20 to 80 percent gravel and cobbles

E horizon:
Hue—10YR
Value—4 to 7
Chroma—2 to 6
Fine-earth texture—silt loam, silt, or loam
Total content of rock fragments—35 to 80 percent gravel and cobbles

2EB horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 6
Fine-earth texture—silt loam, silt, or loam
Total content of rock fragments—35 to 80 percent gravel and cobbles

2Bt horizon:
Hue—2.5YR to 10YR
Value—3 to 6
Chroma—4 to 6
Fine-earth texture—clay loam, silty clay, or clay
Total content of rock fragments—35 to 80 percent gravel and cobbles

Darwin Series

Taxonomic classification: Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls

Typical Pedon

Darwin silty clay; in Madison County, Illinois; on a nearly level flood plain, in a cultivated field, at an elevation of about 423 feet above mean sea level, approximately 1 mile east of Mitchell, about 1,280 feet north and 60 feet east of the southwest corner of sec. 25, T. 4 N., R. 9 W.; USGS Wood River, IL-MO topographic quadrangle; lat. 38 degrees 45 minutes 52 seconds N. and long. 90 degrees 3 minutes 24 seconds W.; UTM Zone 15, Easting 755739, Northing 4294539, NAD 27.

Ap1—0 to 3 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; moderate

medium granular structure; firm; many very fine and few fine roots; neutral; abrupt smooth boundary.

Ap2—3 to 10 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; strong fine and medium angular blocky structure; very firm; common very fine and few fine roots; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

AB—10 to 16 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; very firm; common very fine and few fine roots; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

Bg1—16 to 28 inches; dark gray (2.5Y 4/1) silty clay; weak medium prismatic structure parting to moderate fine and medium angular blocky; very firm; common very fine and few fine roots; many faint dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg2—28 to 40 inches; dark gray (2.5Y 4/1) silty clay; moderate medium prismatic structure parting to strong fine and medium angular blocky; very firm; few very fine roots; many distinct dark gray (2.5Y 4/1) pressure faces on faces of peds; few fine distinct olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg3—40 to 52 inches; dark gray (5Y 4/1) silty clay; moderate medium prismatic structure parting to moderate fine and medium angular blocky; very firm; few very fine roots; many distinct dark gray (5Y 4/1) pressure faces on faces of peds; common fine prominent yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; gradual smooth boundary.

Bg4—52 to 62 inches; dark gray (5Y 4/1) silty clay; moderate coarse prismatic structure parting to moderate medium and coarse angular blocky; very firm; few very fine roots; many distinct dark gray (5Y 4/1) pressure faces on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded strong brown (7.5YR 4/6) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

BCg—62 to 69 inches; gray (5Y 5/1) silty clay loam; weak coarse prismatic structure; firm; few very fine roots; common distinct very dark gray (2.5Y 3/1) organo-clay films on vertical faces of peds; common medium prominent yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; neutral; clear smooth boundary.

Cg—69 to 80 inches; olive gray (5Y 5/2) silty clay loam; masssive; friable; few prominent very dark gray (2.5Y 3/1) organo-clay films lining root channels and filling vesicular pores; many medium and coarse prominent yellowish brown (10YR 5/6) and common fine and medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; neutral.

Range in Characteristics

Depth to the base of the cambic horizon: 40 to more than 60 inches

Thickness of the mollic epipedon: 10 to 24 inches; epipedon extends into the upper part of the Bg horizon in some pedons

Particle-size control section: Average of 45 to 60 percent clay

Series control section: Average of less than 5 percent sand

Depth to carbonates: To the lower part of the Bg horizon and the Cg horizon (if it occurs)

Ap or A horizon:
Hue—10YR, 2.5Y, or neutral
Value—2 or 3 (4 or 5 dry)
Chroma—0 to 2
Texture—typically silty clay; range includes silty clay loam and clay

AB horizon:
Hue—10YR, 2.5Y, or neutral
Value—2 to 6
Chroma—0 to 2
Texture—typically silty clay loam; range includes silty clay and clay

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—typically silty clay; in some pedons there are subhorizons of clay; in some pedons there are subhorizons of silty clay loam in the lower part of horizon

BCg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—typically silty clay loam, silty clay, or clay

Cg horizon (if it occurs):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—typically silty clay loam, silty clay, or clay; in some pedons there are subhorizons of silt loam; in some pedons the horizon is stratified

The Darwin soils in Union County are considered taxadjuncts to the series because they have stratification in the upper part of the profile. This difference, however, does not affect the use and management of the soils.

Drury Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Dystric Eutrudepts

Typical Pedon

Drury silt loam; in Union County, Illinois; on a rolling footslope, in a wooded field, at an elevation of about 445 feet above mean sea level, approximately $2^1/_2$ miles southeast of Ware, about 1,995 feet north and 85 feet west of the center of sec. 32, T. 12 S., R. 2 W.; USGS Jonesboro, IL topographic quadrangle; lat. 37 degrees 26 minutes 6 seconds N. and long. 89 degrees 21 minutes 12 seconds W.; UTM Zone 16, Easting 291798, Northing 4145528, NAD 27.

A1—0 to 2 inches; dark brown (10YR 3/3) silt loam; moderate fine granular structure; very friable; moderately acid; clear smooth boundary.

A2—2 to 6 inches; dark brown (10YR 3/3) silt loam; weak medium granular structure; friable; few faint very dark grayish brown (10YR 3/2) organic films on faces of peds; moderately acid; clear smooth boundary.

Bw1—6 to 15 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; few faint very dark grayish brown (10YR 3/2) organic films on faces of peds; common vesicular pores; moderately acid; gradual smooth boundary.

Bw2—15 to 25 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine and medium subangular blocky structure; very friable; few faint dark brown (10YR 3/3) organic films on faces of peds; common vesicular pores; moderately acid; gradual smooth boundary.

Bw3—25 to 33 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; common distinct pale brown (10YR 6/3) silt coatings on faces of peds; few vesicular pores; slightly acid; gradual smooth boundary.

C1—33 to 49 inches; dark yellowish brown (10YR 4/4) and pale brown (10YR 6/3) silt loam; massive; friable; slightly acid; gradual smooth boundary.

C2—49 to 80 inches; light brownish gray (10YR 6/2) silt loam; massive; friable; few fine distinct dark yellowish brown (10YR 4/4) and common fine faint brown (10YR 5/3) masses of iron accumulation; slightly acid.

Range in Characteristics

Depth to the base of soil development: Typically 30 to 40 inches; ranging from 26 to 45 inches
Particle-size control section: Average of 18 to 25 percent clay
Depth to a buried soil (if it occurs): More than 50 inches
Depth to carbonates (if they occur): More than 40 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4 (4 to 6 dry)
Chroma—2 to 4
Texture—silt loam or silt

E horizon (if it occurs):
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—3 or 4
Texture—silt loam or silt

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6 in the upper part of horizon and 2 to 6 in the lower part
Texture—silt loam

C horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 4
Texture—silt loam; horizon shows evidence of stratification in some pedons, most commonly below a depth of 45 inches; strata are loam, silt loam, or very fine sandy loam

Dupo Series

Taxonomic classification: Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents

Typical Pedon

Dupo silt loam; in Randolph County, Illinois; on a nearly level flood plain, in a cultivated field, at an elevation of about 390 feet above mean sea level, approximately 2$^1/_2$ miles west of Modoc; Illinois State Plane Coordinates 506,150 feet north and 526,600 feet east (Illinois West Zone); T. 5 S., R. 9 W.; USGS Prairie Du Rocher, IL-MO topographic quadrangle; lat. 38 degrees 3 minutes 20 seconds N. and long. 90 degrees 4 minutes 28 seconds W.; UTM Zone 15, Easting 756699, Northing 4215819, NAD 27.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine roots; few very fine continuous tubular pores; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly alkaline; abrupt smooth boundary.

C1—9 to 17 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; few very fine continuous tubular pores; common fine faint grayish brown (10YR 5/2) iron depletions and common fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

C2—17 to 25 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; common very fine and fine continuous tubular pores; common very dark grayish brown (10YR 3/2) wormcasts; many medium faint grayish brown (10YR 5/2) iron depletions and many medium faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

2Ab1—25 to 39 inches; very dark gray (10YR 3/1) silty clay; moderate medium prismatic structure parting to strong fine angular blocky; very firm; few very fine and fine roots; common fine constricted tubular pores; common distinct dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

2Ab2—39 to 59 inches; very dark gray (10YR 3/1) silty clay; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; few very fine and fine roots; few fine and medium constricted tubular pores; few faint dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and few medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; neutral; gradual smooth boundary.

2Bgb—59 to 75 inches; dark gray (10YR 4/1) silty clay; weak coarse prismatic structure; very firm; few very fine and fine roots; common distinct dark gray (10YR 4/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly alkaline; gradual smooth boundary.

2Cg—75 to 80 inches; gray (2.5Y 5/1) clay; massive; very firm; common shiny dark gray (2.5Y 4/1) nonintersecting slickensides; common fine medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral.

Range in Characteristics

Depth to a buried soil: 20 to 40 inches
Particle-size control section: Average of 10 to 18 percent clay in the silty alluvium, 35

to 55 percent clay in the buried horizons, and less than 10 percent sand throughout the profile

Ap or A horizon:
Hue—10YR
Value—typically 4 or 5 (6 or 7 dry); strata with color value of 3 (5 dry) occur in some undisturbed pedons
Chroma—1 to 3
Texture—silt loam or silt; horizon is stratified in many undisturbed pedons

C horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 3
Texture—dominantly silt loam; horizon is stratified with thin lenses of other textures in some pedons

2Ab horizon:
Hue—10YR or neutral
Value—2 to 4
Chroma—0 to 2
Texture—silty clay, clay, or silty clay loam
Redoximophic features (in some pedons)—concentrations with hue redder than 10YR

2Bgb and 2Cg horizons (if they occur):
Hue—10YR or yellower hue
Value—3 to 6
Chroma—1 or 2
Texture—silty clay, clay, or silty clay loam
Redoximorphic features—with higher chroma and redder hues than the matrix

Elsah Series

Taxonomic classification: Loamy-skeletal, mixed, superactive, nonacid, mesic Typic Udifluvents

Typical Pedon

Elsah silt loam; in Alexander County, Illinois; on a nearly level flood plain, in a pasture with widely scattered trees, at an elevation of about 485 feet above mean sea level, approximately 4 miles east of Thebes on the north side of Brownsville Creek, about 60 feet west and 2,025 feet north of the southeast corner of sec. 12, T. 15 S., R. 3 W.; USGS Thebes, IL topographic quadrangle; lat. 37 degrees 13 minutes 30 seconds N. and long. 89 degrees 22 minutes 57 seconds W.; UTM Zone 16, Easting 288618, Northing 4122296, NAD 27.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine roots; few very fine continuous tubular pores; few fine rounded strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly alkaline; abrupt smooth boundary.

C1—9 to 17 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; few very fine continuous tubular pores; common fine faint grayish brown (10YR 5/2) iron depletions and common fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; slightly alkaline; clear smooth boundary.

C2—17 to 25 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; common very fine and fine continuous tubular pores; common very dark grayish brown (10YR 3/2) wormcasts; many medium faint grayish brown (10YR 5/2) iron depletions and many medium faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.

2Ab1—25 to 39 inches; very dark gray (10YR 3/1) silty clay; moderate medium prismatic structure parting to strong fine angular blocky; very firm; few very fine and fine roots; common fine constricted tubular pores; common distinct dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

2Ab2—39 to 59 inches; very dark gray (10YR 3/1) silty clay; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; few very fine and fine roots; few fine and medium constricted tubular pores; few faint dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and few medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; neutral; gradual smooth boundary.

2Bgb—59 to 75 inches; dark gray (10YR 4/1) silty clay; weak coarse prismatic structure; very firm; few very fine and fine roots; common distinct dark gray (10YR 4/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly alkaline; gradual smooth boundary.

2Cg—75 to 95 inches; gray (2.5Y 5/1) clay; massive; very firm; common shiny dark gray (2.5Y 4/1) nonintersecting slickensides; common fine medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral.

Range in Characteristics

Depth to a buried soil: 20 to 40 inches

Particle-size control section: Average of 10 to 18 percent clay in the silty alluvium, 35 to 55 percent clay in the buried horizons, and less than 10 percent sand throughout the profile

Reaction: Typically neutral or slightly acid; ranges from moderately acid to slightly alkaline in some layers in some pedons

Ap or A horizon:

Hue—10YR

Value—dominantly 4 or 5 (6 or 7 dry); strata with color value of 3 (5 dry) occur in some undisturbed pedons

Chroma—1 to 3

Texture—silt loam or silt; horizon is stratified in many undisturbed pedons

C horizon:

Hue—10YR

Value—4 to 6

Chroma—1 to 3

Texture—dominantly silt loam; horizon is stratified with thin lenses of other textures in some pedons

2Ab horizon:

Hue—10YR or neutral

Value—2 to 4

Chroma—0 to 2
Texture—silty clay, clay, or silty clay loam
Redoximorphic features (in some pedons)—concentrations with hue redder than 10YR

2Bgb and 2Cg horizons (if they occur):
Hue—10YR or yellower hue
Value—3 to 6
Chroma—1 or 2
Texture—silty clay, clay, or silty clay loam
Redoximorphic features—with higher chromas and redder hues than the matrix

Gorham Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon

Gorham silty clay loam; in Jackson County, Illinois; on a nearly level flood plain, in a cultivated field, at an elevation of about 360 feet above mean sea level, about 1 mile northwest of Gorham, approximately 1,400 feet east and 1,800 feet north of the southwest corner of sec. 24, T. 9 S., R. 4 W.; USGS Altenburg, MO-IL topographic quadrangle; lat. 37 degrees 43 minutes 37 seconds N. and long. 89 degrees 30 minutes 12 seconds W.; UTM Zone 16, Easting 279381, Northing 4178259, NAD 27.

Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine angular and medium angular blocky structure parting to weak fine granular; firm; common very fine roots; neutral; abrupt smooth boundary.

A—7 to 14 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine angular and medium angular blocky structure; very firm; common very fine roots; common faint black (10YR 2/1) organic coatings on faces of peds; few fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with sharp boundaries; neutral; clear smooth boundary.

Btg1—14 to 26 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to moderate fine angular and medium angular blocky; very firm; common very fine roots; common faint very dark gray (10YR 3/1) organo-clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with clear boundaries; neutral; gradual smooth boundary.

Btg2—26 to 36 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; few very fine roots; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; many fine prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common fine irregular brown (7.5YR 4/4) masses of iron-manganese accumulation with clear boundaries; about 12 percent sand; slightly acid; clear smooth boundary.

2Bt1—36 to 47 inches; olive brown (2.5Y 4/3) clay loam; moderate medium prismatic structure parting to moderate fine angular and medium angular blocky; firm; few very fine roots; few very fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and few prominent very dark gray (10YR 3/1) organo-clay films on vertical faces of peds and lining root channels; many medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

2Bt2—47 to 54 inches; olive brown (2.5Y 4/3) loam; weak medium angular blocky structure; friable; few very fine roots; few very fine continuous tubular pores; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and lining root channels; common fine faint dark grayish brown (2.5YR 4/2) iron depletions and few medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

2BCt—54 to 62 inches; brown (10YR 4/3) fine sandy loam; weak medium and coarse angular blocky structure; very friable; few very fine roots; common very fine and fine continuous tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films on vertical faces of peds and lining root channels and pores; common medium distinct dark grayish brown (2.5Y 4/2) iron depletions in the matrix; few shiny mica flecks; slightly acid; clear smooth boundary.

2C1—62 to 78 inches; brown (10YR 4/3) stratified fine sandy loam and loamy fine sand; massive; very friable; few very fine and fine continuous tubular pores; common fine distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; few shiny mica flecks; slightly acid; abrupt smooth boundary.

2C2—78 to 90 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; neutral.

Range in Characteristics

Depth to the base of the cambic horizon: 35 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches; epipedon extends into the upper part of the B horizon in some pedons
Depth to carbonates (if they occur): More than 40 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—commonly silty clay loam; less commonly silt loam or silty clay

Btg or Bg horizons that formed in silty alluvium:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 5
Chroma—1 or 2
Texture—silty clay loam or silty clay
Clay content—average of 27 to 35 percent; individual horizons have clay content of as much as 42 percent
Sand content—less than 15 percent

2Bt, 2Btg, or 2BC horizons that formed in loamy or sandy alluvium:
Hue—7.5YR, 10YR, 2.5Y, 5Y, or neutral
Value—3 to 5
Chroma—1 to 4
Texture—sandy clay loam, clay loam, loam, sandy loam, or fine sandy loam or loamy sand and its fine and very fine analogs; horizon is stratified in color or texture or both
Clay content—average of 18 to 27 percent; in individual horizons the content ranges from 8 to 32 percent
Sand content—average of 30 to 75 percent; in individual horizons the content ranges from 30 to 85 percent

2C or 2Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—2 to 6

Texture—commonly sand, fine sand, loamy sand, or loamy fine sand; less commonly sandy loam or its fine and very fine analogs; horizon has thin strata of other textures in some pedons
Clay content—average of 5 to 15 percent
Sand content—60 to 95 percent

Goss Series

Taxonomic classification: Clayey-skeletal, mixed, active, mesic Typic Paleudalfs

Typical Pedon

Goss gravelly silt loam; in Union County, Illinois; in a steep or very steep wooded area on uplands, at an elevation of about 675 feet above mean sea level, approximately $^1/_4$ mile northeast of Government Rock, about 2,800 feet north and 400 feet east of the southwest corner of sec. 22, T. 11 S., R. 3 W.; USGS Wolf Lake, IL topographic quadrangle; lat. 37 degrees 32 minutes 53 seconds N. and long. 89 degrees 26 minutes 2 seconds W.; UTM Zone 16, Easting 284983, Northing 4158264, NAD 27.

Oi—0 to 0.5 inch; partially decomposed organic matter on the surface; abrupt smooth boundary.

A—0.5 inch to 2 inches; brown (10YR 5/3, crushed) gravelly silt loam; weak fine granular structure; common very fine to medium roots throughout horizon; 30 percent angular limestone-cherty gravel; moderately acid; abrupt smooth boundary.

E—2 to 7 inches; brown (10YR 5/3) gravelly silt loam; moderate fine and medium subangular blocky structure; common very fine to medium roots throughout horizon; 30 percent angular limestone-cherty gravel; very strongly acid; clear smooth boundary.

2Bw—7 to 16 inches; brown (10YR 5/3) very gravelly clay loam; moderate fine and medium subangular blocky structure; common very fine to medium roots throughout horizon; 50 percent angular limestone-cherty gravel; very strongly acid; clear smooth boundary.

2Bt1—16 to 22 inches; brown (7.5YR 5/4) very gravelly clay loam; strong medium subangular blocky structure; common very fine to medium roots throughout horizon; few faint continuous strong brown (7.5YR 5/6) clay films on vertical and horizontal faces of peds; 40 percent angular limestone-cherty gravel and 20 percent angular limestone-cherty cobbles; extremely acid; clear smooth boundary.

2Bt2—22 to 34 inches; strong brown (7.5YR 5/6, broken face) very cobbly clay; strong fine and medium subangular blocky structure; common very fine to medium roots throughout horizon; few prominent continuous reddish brown (5YR 4/4) and few prominent continuous yellowish red (5YR 4/6) clay films on faces of peds and in pores; 45 percent angular limestone-cherty cobbles and 15 percent angular limestone-cherty gravel; very strongly acid; clear smooth boundary.

2Bt3—34 to 39 inches; brown (7.5YR 5/4) very cobbly clay; strong fine and medium subangular blocky structure parting to strong fine angular blocky; common very fine to medium roots throughout horizon; many prominent continuous yellowish red (5YR 5/6) clay films on faces of peds and in pores; 45 percent angular limestone-cherty cobbles and 15 percent angular limestone-cherty gravel; very strongly acid; clear smooth boundary.

2Bt4—39 to 80 inches; strong brown (7.5YR 5/6) extremely cobbly clay; strong fine and medium subangular blocky structure parting to strong fine angular blocky; common very fine to medium roots throughout horizon; common prominent continuous yellowish red (5YR 4/6) clay films on faces of peds and in pores; 60

percent angular limestone-cherty cobbles and 20 percent angular limestone-cherty gravel; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 80 inches
Depth to the top of the argillic horizon: 7 to 40 inches

A horizon:
Hue—10YR or 7.5YR
Value—2 to 4 (5 or 6 dry)
Chroma—2 to 4
Fine-earth texture—silt loam or loam
Total content of rock fragments—5 to 75 percent gravel and 0 to 20 percent cobbles

E horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 or 4
Fine-earth texture—silt loam, loam, or silty clay loam
Total content of rock fragments—5 to 75 percent gravel and 0 to 15 percent cobbles

Bw, 2Bw, and BE horizons (if they occur):
Hue—10YR to 5YR
Value—4 to 6
Chroma—3 to 8
Fine-earth texture—silt loam, loam, clay loam, or silty clay loam
Total content of rock fragments—5 to 75 percent gravel and 0 to 25 percent cobbles

2Bt horizon:
Hue—10R to 10YR
Value—3 to 6
Chroma—3 to 8
Fine-earth texture—silty clay loam, silty clay, or clay
Total content of rock fragments—15 to 75 percent gravel, 0 to 25 percent cobbles, and 0 to 10 percent stones
Other characteristics—the dominant matrix color in the lower part of the horizon to a depth of 60 inches has hue of 7.5YR or redder and chroma of 6 to 8

3Bt, 2C, and 3C horizons (if they occur):
Color—variable
Texture—variable

Haymond Series

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Haymond silt loam; in Union County, Illinois; in a nearly level field, at an elevation of about 360 feet above mean sea level, approximately 4 miles northwest of Jonesboro, about 1,650 feet south and 530 feet east of the northwest corner of sec. 21, T. 12 S., R. 2 W.; USGS Jonesboro topographic quadrangle; lat. 37 degrees 27 minutes 45

seconds N. and long. 89 degrees 20 minutes 19 seconds W.; UTM Zone 16, Easting 293171, Northing 4148542, NAD 27.

Ap—0 to 10 inches; dark grayish brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; moderately acid; gradual smooth boundary.
A—10 to 20 inches; brown (10YR 4/3) silt loam; weak medium granular structure; very friable; moderately acid; gradual smooth boundary.
Bw1—20 to 42 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; moderately acid; gradual smooth boundary.
Bw2—42 to 60 inches; pale brown (10YR 5/4) silt loam that has pockets of pale brown (10YR 6/3) material; very weak fine subangular blocky structure; friable; moderately acid; gradual smooth boundary.
C—60 to 80 inches; pale brown (10YR 5/3) silt loam; massive; friable; moderately acid.

Range in Characteristics

Depth to the base of the cambic horizon: 30 to 60 inches
Particle-size control section: Average of 10 to 18 percent clay, less than 15 percent fine sand or coarser material, and less than 20 percent very fine sand
Other characteristics: Loamy strata that may contain some pebbles or flagstones occur below a depth of 40 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam or silt

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam

C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam, fine sandy loam, sandy loam, or loam

Hosmer Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon

Hosmer silt loam; in Union County, Illinois; in a nearly level to rolling open area, at an elevation of about 790 feet above mean sea level, approximately 3 1/4 miles northwest of Lick Creek, about 1,200 feet north and 2,225 feet east of the southwest corner of sec. 16, T. 11 S., R. 1 E.; USGS Lick, IL topographic quadrangle; lat. 37 degrees 33 minutes 35 seconds N. and long. 89 degrees 6 minutes 32 seconds W.; UTM Zone 16, Easting 313719, Northing 4158858, NAD 27.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; moderate thin platy structure parting to weak fine granular; few weak very fine subangular blocky peds; friable; common krotovinas; many roots; neutral; abrupt smooth boundary.

Bt1—7 to 18 inches; brown (10YR 5/3) silty clay loam; moderate fine and medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few krotovinas; common vesicular pores; common fine dark concretions; strongly acid; gradual smooth boundary.

Bt2—18 to 25 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; firm; common distinct clay films on faces of peds; few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; few fine distinct light brownish gray (10YR 6/2) iron depletions; few fine masses of iron and manganese accumulation; strongly acid; abrupt smooth boundary.

B/E—25 to 28 inches; yellowish brown (10YR 5/6) silt loam (B part); fine and medium moderate subangular blocky structure; firm; thin to thick clay depletions of light brownish gray (10YR 6/2) silt (E part); common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine masses of iron and manganese concretions; strongly acid; abrupt smooth boundary.

Btx1—28 to 35 inches; yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/4), and light brownish gray (2.5Y 6/2) silty clay loam; moderate medium prismatic structure; very firm and brittle; many prominent grayish brown (2.5Y 5/2) clay films on all faces of peds; many distinct light brownish gray (2.5Y 6/2) clay depletions on faces of peds; common masses of iron and manganese accumulation and stains; strongly acid; gradual smooth boundary.

Btx2—35 to 55 inches; yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/4), and light brownish gray (2.5Y 6/2) silty clay loam; weak coarse and medium prismatic structure; very firm and brittle; many distinct grayish brown (2.5Y 5/2) and brown (10YR 5/3) clay films on vertical and horizontal faces of peds; few iron and manganese stains; strongly acid; gradual smooth boundary.

Btx3—55 to 67 inches; yellowish brown (10YR 5/4) silt loam; weak very coarse prismatic structure; very firm and brittle; few distinct grayish brown (2.5Y 5/2) clay films on faces of peds; many coarse distinct light brownish gray (2.5Y 6/2) iron depletions; common iron and manganese stains on vertical faces of peds; moderately acid; gradual smooth boundary.

Btx4—67 to 80 inches; yellowish brown (10YR 5/4) silt loam; very weak coarse prismatic structure and massive; firm and brittle; common medium prominent light olive gray (5Y 6/2) iron depletions; iron and manganese stains in some vertical cracks and in old root channels; moderately acid.

Range in Characteristics

Thickness of loess: 7 to more than 12 feet
Particle-size control section: Average of 16 to 33 percent clay and 2 to 10 percent sand
Depth to the base of the argillic horizon: 50 to more than 80 inches
Depth to the fragipan: 25 to 45 inches

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—typically silt loam; silty clay loam in some severely eroded pedons

E horizon (if it occurs):
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 6
Texture—silt loam

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam

Btx horizon:
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam

2Bt and B´t horizons (if they occur):
Hue—10YR, 7.5YR, or 2.5Y
Value—3 to 6
Chroma—0 to 6
Texture—clay or silty clay or their channery analogs

Jacob Series

Taxonomic classification: Very fine, smectitic, acid, mesic Vertic Endoaquepts

Typical Pedon

Jacob silty clay; in Jackson County, Illinois; in a nearly level wooded area, at an elevation of about 350 feet above mean sea level, about 4 miles east of Grand Tower, approximately 50 feet north and 1,600 feet east of the southwest corner of sec. 22, T. 10 S., R. 3 W.; USGS Gorham, IL topographic quadrangle; lat. 37 degrees 37 minutes 47 seconds N. and long. 89 degrees 25 minutes 47 seconds W.; UTM Zone 16, Easting 285579, Northing 4167311, NAD 27.

A—0 to 4 inches; dark gray (10YR 4/1) silty clay; moderate medium granular structure; very firm; common fine faint gray (10YR 5/1) iron depletions; slightly acid; clear wavy boundary.

Bg1—4 to 16 inches; gray (10YR 5/1) clay; weak fine angular blocky structure; very firm; very plastic; few fine prominent olive brown (2.5Y 4/4) iron depletions; very strongly acid; gradual wavy boundary.

Bg2—16 to 34 inches; gray (5Y 5/1) clay; weak fine angular blocky structure; very firm; very plastic; common fine prominent light olive brown (2.5Y 5/4) iron depletions; very strongly acid; gradual wavy boundary.

Bg3—34 to 50 inches; olive gray (5Y 5/2) clay; weak fine angular blocky structure in the upper part of horizon and massive in the lower part; very plastic; very strongly acid; gradual wavy boundary.

Cg—50 to 80 inches; grayish brown (2.5Y 5/2) clay; massive; very firm; dark grayish brown (5.5Y 4/2) coatings on pressure faces; many fine distinct light olive brown (2.5Y 5/4) iron depletions; common dark accumulations (iron and manganese oxides) in nodules and along slickensides; slightly acid.

Range in Characteristics

Depth to the base of soil development: 20 to more than 45 inches

A or Ap horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 5
Chroma—0 to 2
Texture—silty clay or clay

Other characteristics—in cultivated areas the Ap horizon typically has value of 4 to 6 and chroma of 1 or 2

B horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7
Chroma—0 to 2
Texture—clay or silty clay

BCg and Cg horizons:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7
Chroma—0 to 2
Texture—clay or silty clay

Karnak Series

Taxonomic classification: Fine, smectitic, nonacid, mesic Vertic Endoaquepts

Typical Pedon

Karnak silty clay; in Massac County, Illinois; in a nearly level cultivated field, at an elevation of about 350 feet above mean sea level, approximately 3 miles east of Karnak, about 230 feet north and 2,800 feet west of the southeast corner of sec. 18, T. 14 S., R. 3 E.; USGS Karnak, IL topographic quadrangle; lat. 37 degrees 17 minutes 28 seconds N. and long. 88 degrees 55 minutes 20 seconds W.; UTM Zone 16, Easting 329615, Northing 4128699, NAD 27.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silty clay, gray (10YR 6/1) and light brownish gray (10YR 6/2) dry; weak fine granular structure; firm; slightly acid; abrupt smooth boundary.

Bg1—5 to 12 inches; dark gray (5Y 4/1) silty clay; weak medium and fine subangular blocky structure; firm; few faint dark gray (5Y 4/1) pressure faces on faces of peds; few fine distinct olive (5Y 5/4) masses of iron accumulation; few prominent yellowish brown (10YR 5/6 and 5/8) iron and manganese stains on surfaces in root channels; slightly acid; clear smooth boundary.

Bg2—12 to 20 inches; dark gray (5Y 4/1) silty clay; weak very fine and fine prismatic structure parting to weak medium and fine subangular blocky; firm; few faint dark gray (5Y 4/1) pressure faces on faces of peds; few faint dark gray (5Y 4/1) clay films on surfaces in root channels; common fine prominent light olive brown (2.5Y 5/6) masses of iron accumulation; common fine black (N 2/0) and yellowish brown (10YR 5/8) concretions of iron and manganese accumulation; slightly acid; clear smooth boundary.

Bg3—20 to 33 inches; dark gray (5Y 4/1) silty clay; moderate medium prismatic structure parting to weak very fine angular blocky; firm; few distinct gray (N 5/0) clay films on surfaces in root channels; common fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; common fine yellowish brown (10YR 5/8) concretions of iron and manganese accumulation; slightly acid; clear smooth boundary.

Bg4—33 to 50 inches; dark gray (N 4/0) silty clay; weak fine prismatic structure parting to weak fine subangular blocky; firm; few distinct gray (N 5/0) pressure faces on faces of peds; few fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; slightly acid; clear smooth boundary.

Cg—50 to 80 inches; gray (5Y 5/1) silty clay loam; massive; firm; many fine prominent yellowish brown (10YR 5/6 and 5/8) and common fine prominent light olive brown

(2.5Y 5/6) masses of iron accumulation; few fine faint light gray (5Y 7/1) iron depletions; slightly alkaline.

Range in Characteristics

Depth to the base of the cambic horizon: Typically 45 to 55 inches; ranging from 30 to 60 inches
Particle-size control section: Average of 40 to 60 percent clay

A or Ap horizon:
Hue—10YR
Value—3 to 6 (4 to 6 dry)
Chroma—1 to 3
Texture—silty clay, clay, or silty clay loam
Other characteristics—where the horizon has color value of 3, it has dry color value of 6 or is less than 10 inches thick, or both

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—clay or silty clay

BCg and Cg horizons:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—silty clay or silty clay loam
Other characteristics—some pedons are stratified within a depth of 60 inches; the strata commonly contain more sand or silt than the matrix

Medway Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon

Medway silty clay loam; in Union County, Illinois; in a nearly level to undulating area in a cultivated field, at an elevation of about 340 feet above mean sea level, approximately 4$^1/_2$ miles northwest of Ware, about 740 feet south and 320 feet west of the northeast corner of sec. 8, T. 12 S., R. 3 W.; USGS Ware, IL-MO topographic quadrangle; lat. 37 degrees 29 minutes 39 seconds N. and long. 89 degrees 27 minutes 17 seconds W.; UTM Zone 16, Easting 283002, Northing 4152311, NAD 27.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak coarse subangular blocky and weak thin platy structure; firm; common roots; neutral; abrupt smooth boundary.
Bt1—9 to 19 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate medium subangular blocky structure; firm; few very dark gray (10YR 3/1) clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; slightly alkaline; clear smooth boundary.
Bt2—19 to 25 inches; dark grayish brown (10YR 4/2) clay loam; weak medium subangular blocky structure; firm; many very dark grayish brown (10YR 3/2) clay films on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; slightly alkaline; clear smooth boundary.
2Bt3—25 to 28 inches; brown (10YR 4/3) loam; weak coarse subangular blocky

structure; friable; few krotovinas; few very dark grayish brown (10YR 3/2) clay films on faces of peds; slightly alkaline; gradual smooth boundary.

2Bt4—28 to 36 inches; brown (10YR 4/3) very fine sandy loam; weak coarse subangular blocky structure; friable; few very dark grayish brown (10YR 3/2) clay films on faces of peds; few krotovinas; slightly alkaline; clear smooth boundary.

2C1—36 to 45 inches; brown (10YR 5/3 and 4/3) strata of loamy very fine sand; massive; very friable; slightly alkaline; gradual smooth boundary.

2C2—45 to 60 inches; pale brown (10YR 6/3) and brown (10YR 4/3) strata of loamy fine sand; massive; very friable; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Depth to the base of the cambic horizon: 28 to 50 inches
Particle-size control section: Average of 18 to 35 percent clay and 15 to 70 percent sand (coarser than very fine sand)
Depth to carbonates: 30 to more than 80 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 to 3
Texture—silty clay loam, silt loam, or clay loam

Bt or Bw horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—2 to 4
Texture—silty clay loam, clay loam, or silt loam

2Bt horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—2 to 4
Texture—clay loam, very fine sandy loam, fine sandy loam, or loam

2C horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 to 6
Texture—fine sandy loam or loamy fine sand; horizon can have strata of loam, silt loam, clay loam, or loamy very fine sand or their gravelly analogs

The Medway soils in Union County are considered taxadjuncts to the series because they have stratification in the upper part of the profile. This difference, however, does not affect the use and management of the soils.

Menfro Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Menfro silt loam; in St. Clair County, Illinois; in a gently sloping area of a cultivated field, at an elevation of about 560 feet above mean sea level, approximately 1.5 miles northwest of O’Fallon, about 1,500 feet north and 1,500 feet east of the center of sec. 24, T. 2 N., R. 8 W.; USGS O’Fallon, IL topographic quadrangle; lat. 38 degrees 36 minutes 42 seconds N. and long. 89 degrees 55 minutes 58 seconds W.; UTM Zone 16, Easting 244629, Northing 4277560, NAD 27.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; many very fine and few fine roots; about 22 percent clay; moderately acid; abrupt smooth boundary.

E—7 to 10 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; common fine continuous tubular pores; about 24 percent clay; moderately acid; abrupt smooth boundary.

Bt1—10 to 18 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; about 32 percent clay; moderately acid; clear smooth boundary.

Bt2—18 to 35 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many distinct brown (10YR 4/3) clay films on faces of peds; about 31 percent clay; moderately acid; gradual smooth boundary.

Bt3—35 to 50 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; few very fine and fine continuous tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; about 30 percent clay; moderately acid; gradual smooth boundary.

Bt4—50 to 62 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine and fine vesicular and tubular pores; few distinct brown (10YR 4/3) clay films on vertical faces of peds; about 28 percent clay; moderately acid; gradual smooth boundary.

Bt5—62 to 70 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; few very fine roots; common very fine and fine vesicular and tubular pores; few distinct brown (10YR 4/3) clay films lining root channels and pores; about 24 percent clay; slightly acid; gradual smooth boundary.

Bt6—70 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; massive; very friable; few very fine roots; common very fine and fine vesicular and tubular pores; very few faint brown (10YR 4/3) clay films lining root channels and pores; about 20 percent clay; slightly acid.

Range in Characteristics

Thickness of the solum: Typically 50 to 70 inches; ranging from 30 to 100 inches
Thickness of loess: 6 to more than 20 feet
Particle-size control section: Upper 20 inches of the argillic horizon averages between 27 and 35 percent clay and less than 7 percent sand; the horizon with the highest clay content has 30 to 38 percent

Ap horizon:
Hue—10YR
Value—3 to 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam

A horizon (in undisturbed areas):
Hue—10YR
Value—2 to 4 (4 to 6 dry)
Chroma—2 or 3
Texture—silt loam

E horizon (if it occurs):
Hue—10YR
Value—4 or 5 (6 or 7 dry)

Chroma—3 or 4
Texture—silt loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam; ranging to silt loam in the lower part of horizon

C horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—silt loam or silty clay loam

Neotoma Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Neotoma flaggy silt loam; in Monroe County, Illinois; on a southwest-facing slope, under mixed hardwoods, at an elevation of approximately 590 feet above mean sea level, about 2.5 miles northwest of Ames, about 1,100 feet south and 2,430 feet west of the northeast corner of sec. 20, T. 4 S., R. 9 W.; USGS Ames, IL topographic quadrangle; lat. 38 degrees 10 minutes 36 seconds N. and long. 90 degrees 7 minutes 5 seconds W.; UTM Zone 15, Easting 752446, Northing 4229139, NAD 27.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) flaggy silt loam, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; common fine roots; about 15 percent flagstones and 5 percent channers; neutral; abrupt smooth boundary.

E—3 to 7 inches; brown (10YR 5/3) very flaggy silt loam, very pale brown (10YR 7/3) dry; weak fine subangular blocky structure; friable; common fine roots; few fine distinct brown (7.5YR 5/4) masses of iron accumulation in the matrix; about 30 percent flagstones and 20 percent channers; moderately acid; abrupt smooth boundary.

BE—7 to 10 inches; strong brown (7.5YR 5/6) extremely flaggy loam; weak fine subangular blocky structure; friable; few very fine roots; about 45 percent flagstones and 25 percent channers; very strongly acid; clear smooth boundary.

Bt1—10 to 15 inches; strong brown (7.5YR 5/6) extremely flaggy fine sandy loam; weak fine subangular blocky structure; friable; few very fine roots; few distinct reddish brown (5YR 5/4) clay films on faces of peds; about 40 percent flagstones and 25 percent channers; very strongly acid; gradual smooth boundary.

Bt2—15 to 25 inches; yellowish red (5YR 5/6) extremely flaggy fine sandy loam; weak fine subangular blocky structure; friable; few very fine roots; few distinct reddish brown (5YR 5/4) clay films on faces of peds; few medium irregular masses of iron-manganese accumulation; about 35 percent flagstones and 30 percent channers; very strongly acid; gradual smooth boundary.

Bt3—25 to 30 inches; strong brown (7.5YR 5/6) extremely flaggy loam; weak fine

subangular blocky structure; friable; few very fine roots; common distinct reddish brown (5YR 5/4) clay films on faces of peds; about 40 percent flagstones and 25 percent channers; very strongly acid; gradual smooth boundary.

Bt4—30 to 50 inches; strong brown (7.5YR 5/6) extremely flaggy sandy clay loam; weak fine subangular blocky structure; friable; few very fine roots; common prominent reddish brown (5YR 5/4) clay films on faces of peds; about 35 percent flagstones and 25 percent channers; very strongly acid; gradual smooth boundary.

Bt5—50 to 60 inches; strong brown (7.5YR 5/6) very flaggy sandy clay loam; weak medium subangular blocky structure; friable; few distinct reddish brown (5YR 5/4) clay films on faces of peds; about 35 percent flagstones and 15 percent channers; very strongly acid.

R—60 inches; unweathered bedrock.

Range in Characteristics

Depth to the base of soil development: 36 to 54 inches
Depth to hard bedrock: 40 to 80 inches
Type and percent of rock fragments: Mainly channers or flagstones from sandstone; 15 to 50 percent, by volume, in the upper part of the solum, 50 to 80 percent in the lower part of the solum, and 80 to 90 percent in the substratum

A or Ap horizon:
Hue—7.5YR or 10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—channery or flaggy analogs of silt loam, loam, sandy loam, fine sandy loam, or sandy clay loam

E horizon (if it occurs):
Hue—7.5YR or 10YR
Value—5 or 6 (6 to 8 dry)
Chroma—2 to 4
Texture—channery, flaggy, very channery, or very flaggy analogs of silt loam, loam, sandy loam, fine sandy loam, or sandy clay loam

BE and Bt horizons:
Hue—5YR, 7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—commonly channery, very channery, flaggy, or very flaggy analogs of silt loam, loam, sandy loam, fine sandy loam, or sandy clay loam; range includes extremely channery or extremely flaggy analogs of loam or sandy loam

BC or C horizon (if it occurs):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—extremely channery or extremely flaggy analogs of loam, sandy loam, or sandy clay loam

Petrolia Series

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Petrolia silty clay loam; in Clinton County, Illinois; in a nearly level area in a cultivated field, at an elevation of about 412 feet above mean sea level, approximately 3 miles south of Bartelso, about 800 feet west and 400 feet south of the center of sec. 29, T. 1 N., R. 3 W.; USGS Addieville, IL topographic quadrangle; lat. 38 degrees 29 minutes 55 seconds N. and long. 89 degrees 27 minutes 28 seconds W.; UTM Zone 16, Easting 285659, Northing 4263792, NAD 27.

Ap—0 to 8 inches; dark grayish brown (2.5Y 4/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; moderate fine granular structure; friable; common very fine roots; few fine rounded black (N 2.5/0) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout horizon; about 34 percent clay; neutral; abrupt smooth boundary.

Bg—8 to 15 inches; dark gray (2.5Y 4/1) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; few faint dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine prominent dark yellowish brown (10YR 4/4) and common fine faint (2.5Y 4/2) masses of iron accumulation in the matrix; few fine rounded black (N 2.5/0) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout horizon; about 32 percent clay; slightly acid; clear smooth boundary.

Btg1—15 to 26 inches; gray (2.5Y 5/1) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark gray (2.5Y 4/1) clay films on faces of peds; common fine and medium prominent dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries and few fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation throughout horizon; about 33 percent clay; slightly acid; clear smooth boundary.

Btg2—26 to 42 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; few distinct dark gray (2.5Y 4/1) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded black (N 2.5/0) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries and common fine irregular strong brown (7.5YR 5/6) masses of iron-manganese accumulation throughout horizon; about 34 percent clay; slightly acid; gradual smooth boundary.

Btg3—42 to 55 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure; firm; few very fine roots; few distinct dark gray (2.5Y 4/1) clay films lining root channels and pores; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout horizon; about 35 percent clay; slightly acid; gradual smooth boundary.

Cg1—55 to 73 inches; gray (2.5Y 6/1) silty clay loam; massive; firm; few very fine roots in old channels; few distinct dark gray (2.5Y 4/1) clay films lining root channels and pores; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and common fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout horizon; about 33 percent clay; neutral; diffuse smooth boundary.

Cg2—73 to 80 inches; gray (2.5Y 6/1) silty clay loam; massive; firm; common medium

and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine irregular black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and few fine and medium irregular strong brown (7.5YR 4/6) masses of iron-manganese accumulation throughout horizon; dark gray (2.5Y 4/1) krotovinas; about 36 percent clay; neutral.

Range in Characteristics

Depth to the base of the cambic horizon: 30 to 80 inches
Particle-size control section: Average of 27 to 35 percent clay and less than 15 percent fine sand or coarser material
Other characteristics: An irregular decrease in organic carbon content as depth increases

Ap or A horizon:
Hue—10YR or 2.5Y
Value—typically 4 to 6 (6 to 8 dry); a thin surface horizon with value of 3 (5 dry) occurs in some pedons
Chroma—1 or 2
Texture—commonly silty clay loam; less commonly silt loam

Bg or Btg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—dominantly silty clay loam; in some pedons horizon is silt loam; in some pedons horizon contains strata of silty clay, silt loam, loam, or fine sandy loam

Piopolis Series

Taxonomic classification: Fine-silty, mixed, active, acid, mesic Typic Fluvaquents

Typical Pedon

Piopolis silty clay loam; in Hamilton County, Illinois; in a nearly level area in a cultivated field, at an elevation of about 384 feet above mean sea level, approximately 10 miles north of McLeansboro, about 1,340 feet south and 1,300 feet west of the center of sec. 26, T. 3 S., R. 6 E.; USGS Belle Prairie City, IL topographic quadrangle; lat. 38 degrees 13 minutes 47 seconds N. and long. 88 degrees 30 minutes 55 seconds W.; UTM Zone 16, Easting 367385, Northing 4232168, NAD 27.

Ap—0 to 7 inches; grayish brown (10YR 5/2) silty clay loam, light grayish brown (10YR 6/2) dry; weak medium granular structure; friable; slightly acid; abrupt smooth boundary.
Bg1—7 to 14 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse subangular blocky structure; firm; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium faint gray (10YR 6/1) iron depletions in the matrix; strongly acid; gradual smooth boundary.
Bg2—14 to 23 inches; gray (10YR 6/1) silty clay loam; weak coarse subangular blocky structure; firm; many medium prominent strong brown (7.5YR 5/6) masses

of iron accumulation in the matrix; few dark iron and manganese concretions; strongly acid; gradual smooth boundary.

Bg3—23 to 37 inches; gray (10YR 6/1) silty clay loam; weak coarse subangular blocky structure; firm; many medium prominent strong brown (7.5YR 5/6) and common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; common black iron and manganese concretions; strongly acid; gradual smooth boundary.

Cg—37 to 60 inches; gray (10YR 6/1) silty clay loam; massive; firm; few coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; strongly acid.

Range in Characteristics

Depth to the base of the cambic horizon: 20 to 60 inches

Particle-size control section: Average of 27 to 35 percent clay and less than 15 percent fine sand or coarser material

Other characteristics: An irregular decrease in organic carbon content as depth increases

Ap or A horizon:

Hue—10YR, 2.5Y, or 5Y

Value—typically 4 to 6 (6 to 8 dry); in some pedons there is a thin surface horizon with value of 3 (5 dry)

Chroma—1 to 3

Texture—commonly silty clay loam; less commonly silt loam

Bg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—silty clay loam

Cg horizon:

Hue—10YR, 2.5Y, 5Y, or neutral

Value—4 to 6

Chroma—0 to 2

Texture—dominantly silty clay loam or silt loam; range includes thin strata of fine sandy loam, loam, or silty clay

Sarpy Series

Taxonomic classification: Mixed, mesic Typic Udipsamments

Typical Pedon

Sarpy fine sand; in Monroe County, Illinois; on a nearly level to gently sloping natural levee, in a cultivated field, at an elevation of about 393 feet above mean sea level, on Meissner Island, approximately 2 miles northwest of Valmeyer, about 2,060 feet west and 2,280 feet south of the northeast corner of sec. 6, T. 3 S., R. 11 W.; USGS Valmeyer, IL-MO topographic quadrangle; lat. 38 degrees 18 minutes 23 seconds N. and long. 90 degrees 21 minutes 50 seconds W.; UTM Zone 15, Easting 730501, Northing 4242892, NAD 27.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) fine sand, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; common very fine roots; slightly effervescent; slightly alkaline; abrupt smooth boundary.

C1—9 to 19 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; few

very fine roots; strongly effervescent; slightly alkaline; gradual smooth boundary.

C2—19 to 29 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; few very fine roots; few coarse faint brown (10YR 4/3) masses of iron accumulation in the matrix; few fine dark masses of iron-manganese accumulation; strongly effervescent; slightly alkaline; gradual smooth boundary.

C3—29 to 56 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; few very fine roots; common medium faint brown (10YR 4/3) masses of iron accumulation in the matrix; common fine dark masses of iron-manganese accumulation; strongly effervescent; slightly alkaline; gradual smooth boundary.

C4—56 to 80 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; common medium faint brown (10YR 4/3) masses of iron accumulation in the matrix; strongly effervescent; slightly alkaline.

Range in Characteristics

Particle-size control section: Less than 10 percent silt plus clay and less than 40 percent silt plus clay plus very fine sand

Depth to carbonates: 0 to 60 inches

Ap or A horizon:

Hue—10YR or 2.5Y

Value—3 to 5 (4 to 6 dry)

Chroma—1 to 3

Texture—sand, loamy sand, loamy fine sand, fine sand, or fine sandy loam; a thin overwash of finer materials, such as silt loam or silty clay loam, is recognized

C horizon:

Hue—10YR or 2.5Y

Value—4 to 6

Chroma—2 to 4

Texture—stratified loamy fine sand, loamy sand, fine sand, or sand

The Sarpy soils in Union County are considered taxadjuncts to the series because most of the pedons contain thin loamy subhorizons in the control section. This difference, however, does not affect the use and management of the soils.

Stoy Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fragiaquic Hapludalfs

Typical Pedon

Stoy silt loam; in Gallatin County, Illinois; in a nearly level area in a cultivated field, at an elevation of about 389 feet above mean sea level, approximately 2 miles southwest of Omaha, about 1,320 feet east of the southwest corner of sec. 28, T. 7 S., R. 8 E.; USGS Norris City, IL topographic quadrangle; lat. 37 degrees 52 minutes 45 seconds N. and long. 88 degrees 19 minutes 58 seconds W.; UTM Zone 16, Easting 382795, Northing 4193027, NAD 27.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many roots; few fine concretions of iron and manganese oxides throughout horizon; very strongly acid; abrupt smooth boundary.

E1—6 to 9 inches; mixed light yellowish brown (10YR 6/4) and yellowish brown (10YR 5/4) silt loam; weak thin platy structure parting to weak fine granular; friable; common roots; common very dark grayish brown (10YR 3/2) organic stains; few medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many fine concretions of iron and manganese oxides throughout horizon; very strongly acid; clear smooth boundary.

E2—9 to 13 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium granular structure; friable; common roots; common medium distinct light brownish gray (10YR 6/2) iron depletions and yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many fine concretions of iron and manganese oxides throughout horizon; very strongly acid; clear smooth boundary.

BE—13 to 16 inches; yellowish brown (10YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; friable; common roots; few medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many fine concretions of iron and manganese oxides throughout horizon; very strongly acid; clear smooth boundary.

Bt1—16 to 24 inches; yellowish brown (10YR 5/8) silty clay loam; moderate fine subangular blocky structure; firm; common roots; common prominent light brownish gray (10YR 6/2) clay depletions on faces of peds, light gray (10YR 7/1) dry; few fine prominent light brownish gray (10YR 6/2) and brown (10YR 5/3) iron depletions in the matrix; many fine concretions of iron and manganese oxides throughout horizon; very strongly acid; clear smooth boundary.

Bt2—24 to 27 inches; yellowish brown (10YR 5/8 and 5/4) silty clay loam; moderate coarse subangular blocky structure parting to moderate fine and very fine angular blocky; firm; common roots; prominent continuous light brownish gray (10YR 6/2) clay depletions on faces of larger peds and continuous brown (10YR 4/3) clay films on faces of smaller angular peds; few fine prominent light gray (10YR 7/1) iron depletions in the matrix; many medium concretions of iron and manganese oxides throughout horizon; many black (10YR 2/1) threadlike manganese coatings and spherical manganese masses; very strongly acid; clear smooth boundary.

Bt3—27 to 32 inches; yellowish brown (10YR 5/8 and 5/4) silty clay loam; moderate medium subangular blocky structure; very firm; common roots; continuous brown (10YR 4/3) clay films on faces of peds; few fine prominent light gray (10YR 7/1) and light brownish gray (10YR 6/2) iron depletions in the matrix; many fine concretions of iron and manganese oxides throughout horizon; common black (10YR 2/1) threadlike manganese coatings and spherical manganese masses; very strongly acid; gradual smooth boundary.

Btx1—32 to 36 inches; mottled grayish brown (10YR 5/2), brown (10YR 5/3), and yellowish brown (10YR 5/8) silty clay loam; weak coarse subangular blocky structure; firm; common roots; discontinuous brown (10YR 4/3) clay films; few fine distinct light gray (10YR 7/1) iron depletions in the matrix; many fine concretions of iron and manganese oxides throughout horizon; very strongly acid; gradual smooth boundary.

Btx2—36 to 45 inches; mottled grayish brown (10YR 5/2), brown (10YR 5/3), and yellowish brown (10YR 5/8) silty clay loam; weak coarse prismatic structure; extremely firm; few roots; patchy brown (10YR 4/3) clay films; common fine and medium distinct light gray (10YR 7/1) iron depletions in the matrix; many fine concretions of iron and manganese oxides throughout horizon; very strongly acid; gradual smooth boundary.

Bx—45 to 80 inches; mottled grayish brown (10YR 5/2), pale brown (10YR 6/3), yellowish brown (10YR 5/8), and light gray (10YR 7/1) silt loam; weak medium prismatic structure; extremely firm; few very dark grayish brown (10YR 3/2) threadlike manganese coatings and spherical manganese masses; many fine concretions of iron and manganese oxides; very strongly acid.

Range in Characteristics

Depth to the base of the argillic horizon: 35 to 65 inches
Depth to the fragic soil properties: 25 to about 45 inches
Particle-size control section: Average of 27 to 35 percent clay

Series control section: Less than 10 percent fine sand or coarser material throughout the profile
Other characteristics: Redoximorphic features in all layers below the Ap horizon; a BE or B/E horizon less than 4 inches thick occurs in some pedons

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—commonly silt loam; less commonly clay loam

A horizon (in undisturbed areas):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—commonly silt loam; less commonly silty clay loam
Thickness—less than 4 inches

E, BE, and B/E horizons:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—commonly silt loam and less commonly silty clay loam; some pedons have a BE or B/E horizon less than 4 inches thick

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 8
Texture—silty clay loam or silt loam

Btx or Bx horizon:
Hue—10YR
Value—5 to 7
Chroma—2 to 8
Texture—silty clay loam or silt loam
Clay content—24 to 35 percent

C or Cx horizon (if it occurs):
Hue—10YR
Value—5 to 7
Chroma—1 to 8
Texture—silt loam
Clay content—20 to 27 percent

Tice Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon

Tice silty clay loam; in Monroe County, Illinois; in a nearly level area in a cultivated field, at an elevation of about 398 feet above mean sea level, approximately 1/2 mile northwest of Chalfin Bridge, about 550 feet southwest of the railroad tracks and 150 feet southeast of Outlet Road, in parcel S. 707, T. 4 S., R. 11 W; USGS Selma, IL-MO topographic quadrangle; lat. 38 degrees 12 minutes 53 seconds N. and long. 90

degrees 16 minutes 37 seconds W.; UTM Zone 15, Easting 738409, Northing 4232935, NAD 27.

Ap—0 to 9 inches; very dark brown (10YR 2/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; many very fine roots; neutral; abrupt smooth boundary.

A—9 to 16 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; many very fine roots; common continuous distinct very dark brown (10YR 2/2) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw1—16 to 24 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bw2—24 to 35 inches; brown (10YR 4/3) silty clay loam; weak fine prismatic structure parting to moderate fine subangular blocky; firm; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bg1—35 to 47 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots; many continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded dark brown (7.5YR 3/3) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

Bg2—47 to 61 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; many continuous prominent very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine rounded dark brown (7.5YR 3/3) masses of iron-manganese accumulation; neutral; gradual smooth boundary.

Bg3—61 to 72 inches; grayish brown (10YR 5/2) silty clay loam; weak fine prismatic structure; firm; very fine roots; common continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on vertical faces of peds; many fine and medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine and medium irregular very dark brown (7.5YR 2.5/2) and strong brown (7.5YR 4/6) masses of iron-manganese accumulation; slightly acid; clear smooth boundary.

BCg—72 to 80 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure; firm; few very fine roots; few discontinuous faint dark grayish brown (10YR 4/2) clay films on vertical faces of peds and in pores and root channels; common fine and medium faint brown (10YR 4/3) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine and medium irregular black (7.5YR 2.5/1) masses of iron-manganese accumulation; slightly acid.

Range in Characteristics

Depth to the base of soil development: 30 to more than 80 inches
Thickness of the mollic epipedon: 10 to 24 inches
Particle-size control section: Average of 22 to 35 percent clay and less than 15 percent sand
Other characteristics: Some pedons have an AB or BA horizon

Ap or A horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silty clay loam or silt loam

Bw and Bg horizons:
Hue—dominantly 10YR or 2.5Y; 5Y in some gleyed pedons below a depth of 50 inches
Value—4 or 5
Chroma—dominantly 2 to 4; 1 in some gleyed pedons below a depth of 50 inches
Texture—silty clay loam or silt loam

BC or BCg horizon (if it occurs):
Hue—10YR, 2.5Y, or 5Y
Value—4 or 5
Chroma—1 to 4
Texture—typically silty clay loam or silt loam; horizon has strata of loam, clay loam, or sandy loam in some pedons

C or Cg horizon (if it occurs):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 3
Texture—stratified silty clay loam, clay loam, loam, sandy loam, or silt loam

Wakeland Series

Taxonomic classification: Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents

Typical Pedon

Wakeland silt loam; in Madison County, Illinois; in a nearly level area in a cultivated field, at an elevation of about 485 feet above mean sea level, approximately 2 miles northeast of Highland, about 1,600 feet north and 1,330 feet east of the center of sec. 34, T. 4 N., R. 5 W.; USGS Grantfork, IL topographic quadrangle; lat. 38 degrees 45 minutes 18 seconds N. and long. 89 degrees 38 minutes 27 seconds W.; UTM Zone 16, Easting 270517, Northing 4292692, NAD 27.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; very thin lenses of light gray (10YR 7/1) silt and very fine sand; weak fine granular structure; friable; many very fine and few fine roots; few fine continuous tubular pores; neutral; clear smooth boundary.
Cg1—8 to 34 inches; dark grayish brown (10YR 4/2) silt loam; thin lenses of light brownish gray (10YR 6/2) silt and very fine sand; massive; friable; few very fine roots; common very fine and fine continuous tubular pores; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; neutral; gradual smooth boundary.
Cg2—34 to 44 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common medium faint light brownish gray (10YR 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.
Cg3—44 to 68 inches; brown (10YR 5/2) silt loam; massive; friable; common medium faint dark grayish brown (10YR 4/2) and light brownish gray (10YR 6/2) iron

depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium rounded dark brown (7.5YR 3/2) masses of iron-manganese nodules; slightly acid; clear smooth boundary.

Ab—68 to 80 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine subangular blocky structure; friable; few fine rounded black (10YR 2/1) iron-manganese nodules; slightly acid.

Range in Characteristics

Particle-size control section: Average of 10 to 18 percent clay and less than 15 percent fine sand or coarser material

Depth to a buried soil (if it occurs): More than 60 inches

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam

A horizon:
Hue—10YR
Value—3 or 4 (5 or 6 dry)
Chroma—1
Texture—silt loam
Thickness—1 to 3 inches

C or Cg horizon (upper part):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

C or Cg horizon (lower part):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 to 6
Texture—silt loam; range includes loam and thin strata of fine sandy loam or sandy loam below a depth of 40 inches

Ware Series

Taxonomic classification: Coarse-loamy, mixed, active, thermic Fluventic Hapludolls

Typical Pedon

Ware loam; in Jackson County, Illinois; in a nearly level to undulating area of a cultivated field, at an elevation of about 357 feet above mean sea level, approximately 1/4 mile southeast of Neunert, 660 feet south and 690 feet east of the northwest corner of sec. 27, T. 9 S., R. 4 W.; USGS Altenburg, MO-IL topographic quadrangle; lat. 37 degrees 43 minutes 15 seconds N. and long. 89 degrees 32 minutes 35 seconds W.; UTM Zone 16, Easting 275862, Northing 4177663, NAD 27.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) loam; weak medium granular structure; friable; common roots; moderately acid; abrupt smooth boundary.

A1—7 to 11 inches; very dark brown (10YR 2/2) loam; weak medium granular structure; friable; few roots; slightly acid; clear smooth boundary.

A2—11 to 14 inches; very dark brown (10YR 2/2) loam; weak coarse granular structure; friable; few roots; slightly acid; clear smooth boundary.

Bw—14 to 21 inches; brown (10YR 4/3) and very dark grayish brown (10YR 3/2) very fine sandy loam; weak medium subangular blocky structure; very friable; few roots; slightly acid; clear smooth boundary.
C1—21 to 30 inches; stratified yellowish brown (10YR 5/4) loamy very fine sand and brown (10YR 4/3) and very dark grayish brown (10YR 3/2) very fine sandy loam; single grain; very friable; few roots; neutral; clear smooth boundary.
C2—30 to 38 inches; yellowish brown (10YR 5/4) and brown (10YR 4/3) very fine sandy loam; massive; very friable; few dark brown (10YR 3/3) lenses; neutral; gradual smooth boundary.
C3—38 to 54 inches; yellowish brown (10YR 5/4) very fine sandy loam; massive; very friable; few dark brown (10YR 3/3) lenses in upper 6 inches of horizon and pale brown (10YR 6/3) streaks in lower part; neutral; clear smooth boundary.
C4—54 to 60 inches; grayish brown (10YR 5/2), dark yellowish brown (10YR 4/4), and yellowish brown (10YR 5/6) very fine sandy loam; massive; very friable; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 23 inches
Thickness of the solum: 15 to 30 inches
Organic carbon distribution: Irregular decrease of organic matter between depths of 10 and 50 inches

Ap horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—loam, silt loam, or very fine sandy loam

Bw horizon (if it occurs):
Hue—10YR
Value—3 to 5
Chroma—typically 3 or 4; chroma of 2 with value of 3 may occur where mixing with surface horizons has occurred
Texture—typically loam or very fine sandy loam; the lower part of horizon in some pedons is stratified with coarser or finer textured material

C horizon:
Hue—10YR
Value—4 to 6
Chroma—typically 2 to 4; chroma of 2 with value of 3 may occur where mixing with surface horizons has occurred
Texture—dominantly very fine sandy loam to fine sand; texture ranges from silt loam to sand; horizon is commonly stratified

The Ware soils in Union County are considered taxadjuncts to the series because they have stratification in the upper part of the profile. This difference, however, does not affect the use and management of the soils.

Wellston Series

Taxonomic classification: Fine-silty, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Wellston silt loam; in Randolph County, Illinois; in an area of mixed hardwoods, at an elevation of about 485 feet above mean sea level, approximately 4.5 miles southeast of Chester, about 1,835 feet west and 785 feet north of the center of sec. 26, T. 7 S.,

R. 6 W.; USGS Welge, IL topographic quadrangle; lat. 37 degrees 53 minutes 38 seconds N. and long. 89 degrees 44 minutes 25 seconds W.; UTM Zone 16, Easting 259033, Northing 4197377, NAD 27.

A—0 to 3 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate medium granular structure; friable; about 5 percent sandstone channers; slightly acid; abrupt smooth boundary.

E—3 to 8 inches; yellowish brown (10YR 5/4) silt loam, very pale brown (10YR 7/4) dry; weak medium platy structure; friable; about 3 percent sandstone channers; moderately acid; clear smooth boundary.

Bt1—8 to 17 inches; strong brown (7.5YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; many distinct brown (7.5YR 4/4) clay films on faces of peds; about 3 percent sandstone channers; strongly acid; clear smooth boundary.

Bt2—17 to 31 inches; strong brown (7.5YR 5/6) silt loam; moderate and strong medium subangular blocky structure; firm; common distinct brown (7.5YR 4/4) clay films and many distinct pinkish gray (7.5YR 6/2) clay depletions on faces of peds; about 5 percent sandstone channers; strongly acid; gradual smooth boundary.

Bt3—31 to 43 inches; strong brown (7.5YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; hard; common distinct brown (7.5YR 4/4) clay films on faces of peds and common distinct pinkish gray (7.5YR 6/2) clay depletions on vertical faces of peds; about 10 percent sandstone channers; moderately acid; gradual smooth boundary.

2BCt—43 to 49 inches; strong brown (7.5YR 5/6) channery silt loam; weak coarse subangular blocky structure; hard; few faint brown (7.5YR 4/4) clay films on faces of peds and common distinct pinkish gray (7.5YR 6/2) clay depletions on vertical faces of peds; few very dark gray (N 3/0) organo-clay films lining root channels; about 20 percent sandstone channers; moderately acid; clear irregular boundary.

2C—49 to 60 inches; brown (7.5YR 5/4) very channery loam; massive; friable; about 55 percent sandstone and siltstone channers and flagstones; strongly acid.

R—60 inches; unweathered sandstone bedrock.

Range in Characteristics

Depth to the base of soil development: 32 to 55 inches
Depth to a lithic or paralithic contact: 40 to 72 inches
Other characteristics: Some pedons have a B/E horizon

Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5 (6 or 7 dry)
Chroma—typically 2 or 3; 4 to 6 in eroded pedons
Texture—silt loam

A horizon in uncultivated areas:
Hue—10YR
Value—2 to 4 (4 to 6 dry)
Chroma—1 to 3
Texture—silt loam or silty clay loam

E horizon:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—3 or 4
Texture—silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture—silty clay loam or silt loam

2Bt and 2BC horizons (if they occur):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, silty clay loam, clay loam, or loam or their channery, very channery, gravelly, or very gravelly analogs

2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—gravelly or channery to extremely gravelly or extremely channery loam, silt loam, clay loam, sandy clay loam, or sandy loam

Westmore Series

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Westmore silt loam; in Monroe County, Illinois; on a west-facing slope, in an area of mixed hardwoods, at an elevation of about 600 feet above mean sea level, approximately 2.5 miles northwest of Ames, about 1,300 feet south and 2,280 feet west of the northeast corner of sec. 20, T. 4 S., R. 9 W.; USGS Ames, IL topographic quadrangle; lat. 38 degrees 10 minutes 33 seconds N. and long. 90 degrees 7 minutes 1 second W.; UTM Zone 15, Easting 752554, Northing 4229042, NAD 27.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine roots; slightly acid; abrupt smooth boundary.

E—2 to 6 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate fine subangular blocky structure; friable; few very fine roots; few fine faint brown (7.5YR 4/4) masses of iron accumulation in the matrix; strongly acid; clear smooth boundary.

BE—6 to 10 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; few very fine roots; strongly acid; clear smooth boundary.

Bt1—10 to 16 inches; strong brown (7.5YR 5/6) silt loam; moderate fine subangular blocky structure; friable; few very fine roots; common faint brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—16 to 22 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; common faint brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt3—22 to 27 inches; brown (7.5YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; common prominent very pale brown (10YR 7/3, dry) clay depletions and common faint brown (7.5YR 4/4) clay films on faces of peds; few fine rounded and irregular iron-manganese concretions; about 5 percent fine sandstone fragments; strongly acid; clear smooth boundary.

2Bt4—27 to 32 inches; strong brown (7.5YR 4/6) silty clay; weak medium prismatic

structure parting to moderate medium subangular blocky; firm; few very fine roots; common prominent very pale brown (10YR 7/3, dry) clay depletions and common faint brown (7.5YR 4/4) clay films on faces of peds; few fine prominent brown (7.5YR 5/2) iron depletions and few fine distinct dark red (2.5YR 3/6) masses of iron accumulation in the matrix; few medium rounded and irregular iron-manganese concretions; about 5 to 10 percent fine sandstone fragments; strongly acid; abrupt smooth boundary.

2Bt5—32 to 62 inches; variegated strong brown (7.5YR 5/6) and brown (7.5YR 5/2) clay; weak medium prismatic structure; extremely firm; few very fine roots; few faint brown (7.5YR 4/4) clay films on faces of peds; common fine prominent dark red (2.5YR 3/6) masses of iron accumulation in the matrix; about 10 to 15 percent sandstone fragments; strongly acid.

R—62 inches; unweathered siltstone bedrock.

Range in Characteristics

Depth to the base of soil development: 40 to 72 inches
Depth to a lithic or paralithic contact: 48 to 80 inches
Thickness of loess or other silty material: 20 to 36 inches
Particle-size control section: Average of 25 to 35 percent clay and 2 to 15 percent fine sand or coarser material

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam or silty clay loam in some severely eroded areas

A horizon (in uncultivated areas):
Hue—10YR
Value—2 to 4 (4 to 6 dry)
Chroma—1 to 3
Texture—silt loam or silty clay loam in some severely eroded areas
Thickness—1 to 5 inches

E and BE horizons (if they occur):
Hue—10YR or 7.5YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam

2Bt or 2BC horizon (if it occurs):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay, clay, silty clay loam, or clay loam or their channery analogs

2C horizon (if it occurs):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 6

Texture—commonly clay or silty clay; less commonly sandy clay, clay loam, or silty clay loam or their channery analogs

Winfield Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon

Winfield silt loam; in St. Clair County, Illinois; on a south-facing slope, in a cultivated field, at an elevation of about 540 feet above mean sea level, approximately 3 miles north of O'Fallon, about 205 feet east and 610 feet south of the northwest corner of sec. 9, T. 2 N., R. 7 W.; USGS Collinsville, IL topographic quadrangle; lat. 38 degrees 38 minutes 32 seconds N. and long. 89 degrees 53 minutes 27 seconds W.; UTM Zone 16, Easting 248393, Northing 4280829, NAD 27.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine roots; about 22 percent clay; neutral; abrupt smooth boundary.

E—9 to 13 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; few faint light gray (10YR 7/2, dry) clay depletions on faces of peds; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 25 percent clay; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few distinct light gray (10YR 7/2, dry) clay depletions along root channels; many distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium rounded black (10YR 2/1) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries; about 33 percent clay; moderately acid; clear smooth boundary.

Bt2—21 to 30 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries; about 32 percent clay; strongly acid; gradual smooth boundary.

Btg1—30 to 40 inches; light brownish gray (10YR 6/2) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/4) and few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; moderately acid; clear smooth boundary.

Btg2—40 to 56 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many medium and coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine and medium irregular black (10YR 2/1) masses of iron-manganese accumulation with clear strong brown (7.5YR 4/6) boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

Btg3—56 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium angular blocky structure; friable; few very fine roots; few faint brown (10YR 5/3) clay films on faces of peds; common fine and medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common medium irregular black (10YR 2/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 25 percent clay; slightly acid; gradual smooth boundary.

Cg—62 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; common medium and coarse prominent strong brown (7.5YR 4/6) and few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium and coarse irregular black (10YR 2/1) masses of iron-manganese accumulation with diffuse strong brown (7.5YR 5/6) boundaries; about 20 percent clay; neutral.

Range in Characteristics

Depth to the base of the argillic horizon: 35 to 65 inches
Thickness of loess: 80 inches or more
Particle-size control section: Average of 27 to 35 percent clay and less than 7 percent sand

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam or silty clay loam

A horizon:
Hue—10YR
Value—3 or 4 (5 or 6 dry)
Chroma—2 or 3
Texture—silt loam or silty clay loam
Thickness—typically less than 6 inches

E horizon (if it occurs):
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—2 to 4
Texture—silt loam or silty clay loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam

Bt horizon (upper part):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam

Bt horizon (lower part) and Btg horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silt loam or silty clay loam

C or Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

Zanesville Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon

Zanesville silt loam; in Hardin County, Illinois; in a nearly level to rolling, abandoned brushy area, at an elevation of about 598 feet above mean sea level, approximately 2 miles northeast of Karbers Ridge, about 1,800 feet west and 950 feet north of the southeast corner of sec. 2, T. 11 S., R. 8 E.; USGS Karbers Ridge, IL topographic quadrangle; lat. 37 degrees 35 minutes 24 seconds N. and long. 88 degrees 17 minutes 19 seconds W.; UTM Zone 16, Easting 386231, Northing 4160900, NAD 27.

Ap—0 to 4 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine granular structure; friable; very strongly acid; clear smooth boundary.

Bt1—4 to 7 inches; brown (7.5YR 4/4) silt loam; weak fine subangular blocky structure; friable; very strongly acid; clear smooth boundary.

Bt2—7 to 16 inches; brown (7.5YR 4/4) silt clay loam; moderate medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

Bt3—16 to 22 inches; brown (7.5YR 4/4) and strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; firm; pale brown (10YR 6/3) clay depletion threads and coatings; few faint brown (7.5YR 4/4) clay films on faces of peds; few channers and flagstones ranging from 3 to 8 inches in diameter; very strongly acid; gradual wavy boundary.

Btx1—22 to 35 inches; brown (7.5YR 4/4) silt loam; very weak coarse prismatic structure parting to weak medium subangular blocky; very firm; few distinct dark brown (7.5YR 3/2) clay films; common fine distinct light yellowish brown (10YR 6/4) masses of iron accumulation and very pale brown (10YR 7/3) clay depletion threads; common fine black (N 2/0) iron-manganese concretions; very brittle; few stones; very strongly acid; gradual wavy boundary.

Btx2—35 to 42 inches; brown (7.5YR 4/4) silt loam; very weak coarse prismatic structure parting to weak medium subangular blocky; extremely firm; few fine very dark grayish brown (10YR 3/2) organic stains; few fine distinct brownish yellow (10YR 6/6) masses of iron accumulation; few fine black (N 2/0) iron-manganese concretions; extremely brittle; 15 percent stones; strongly acid; gradual wavy boundary.

2Btx3—42 to 48 inches; yellowish brown (10YR 5/6) channery silt loam; very weak coarse prismatic structure parting to weak coarse subangular blocky; extremely firm; few thin dark yellowish brown (10YR4/4) clay films; extremely brittle; about 25 percent shale fragments; neutral; clear wavy boundary.

2C—48 to 60 inches; red (2.5YR 4/6) very channery silty clay; common fine prominent pale brown (10YR 6/3) and olive (5Y 5/4) mottles; weak platy structure; firm; about 50 percent shale fragments; neutral.

Cr—60 inches; shale bedrock.

Range in Characteristics

Thickness of loess: 24 to 48 inches
Depth to the base of the argillic horizon: 50 to 80 inches

Depth to the fragipan: 20 to 32 inches
Depth to a lithic or paralithic contact: 48 to 80 inches

Ap horizon:
Hue—10YR or 7.5YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—typically silt loam; silty clay loam in some severely eroded areas

A horizon (in uncultivated areas):
Hue—10YR or 7.5YR
Value—3 or 4
Chroma—1 to 3
Texture—typically silt loam; silty clay loam in some severely eroded areas
Thickness—1 to 3 inches

E horizon (if it occurs):
Hue—10YR or 7.5YR
Value—3 or 4
Chroma—1 to 3
Texture—silt loam or silty clay loam

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam

Btx horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam, silty clay loam, loam, or clay loam

2Btx horizon:
Hue—10YR, 7.5YR, 5YR, or 2.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam, silt loam, loam, clay loam, sandy clay loam, or fine sandy loam

2C or 2BC horizon:
Hue—10YR, 7.5YR, 5YR, or 2.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam, silt loam, loam, clay loam, sandy clay loam, or fine sandy loam or their gravelly, channery, or very channery analogs

Formation of the Soils

This section relates the soils in the survey area to the major factors of soil formation and describes the processes of soil formation. It also discusses the geology of the survey area.

Factors of Soil Formation

A soil is a three-dimensional natural body consisting of mineral and organic material that can support plant growth. The nature of any soil at a given site is the result of the interaction of the factors of soil formation and their influence on the process of soil formation.

The following paragraphs describe the factors of soil formation and their effect on the soils in Union County. Soil-forming processes act on deposited or accumulated geologic material. They slowly change the material into a soil. The characteristics of the soil at any given point are determined by (1) the physical and mineralogical composition of the parent material; (2) the plant and animal life on and in the soil; (3) the topography, or lay of the land; (4) the climate under which the soil material has accumulated and existed since accumulation; and (5) the length of time that the forces of soil formation have acted on the soil material *(13)*.

Climate and plants and animals act directly on parent material, which is modified by topography over time. Theoretically, if all the soil-forming factors were identical at different sites, the soils at these sites would be identical. The variation that exists among soils is the result of unique combinations of the soil-forming factors. Soils are continually evolving in response to these factors.

Parent Material

Parent material is the unconsolidated mass in which the soil forms. It determines the mineralogical and chemical composition of the soil and, to a large extent, the rate of the soil-forming processes. The soils in Union County formed in loess, alluvium, and material weathered from bedrock.

Loess, or wind-deposited material, is the most extensive parent material in the county. The Mississippi River Bottom is the primary source of loess in Union County. The loess blankets many of the other materials. It is the parent material of about two-thirds of the soils in the county. It is thickest, 25 to 30 feet thick, on the bluffs along the Mississippi River and thinnest, about 5 or 6 feet thick, on the ridgetops in the northeastern part of the county. In most areas two layers of loess are evident. The upper layer is the Peoria Loess. This loess is yellowish brown silt loam. Menfro soils formed in areas where the Peoria Loess is thickest. The lower layer is the Roxana Loess. This material, which weathered before it was covered by the Peoria Loess, generally is distinctly browner, less permeable, and more dense than the Peoria Loess. In areas where the Peoria Loess is thinner, the Roxana Loess has a greater influence on the modern soil. Hosmer and Zanesville soils are examples of soils that formed in both of these loess deposits.

Soils on flood plains and bottom land formed in water-lain material or alluvium. In

many areas they still receive sediments. They range from sand to clay. Darwin and Jacob soils are examples of soils that formed in clayey alluvial sediments deposited by slack water from the Mississippi River. They are on broad flats and in sloughs and old channels. Haymond and Wakeland soils formed in silty material on flood plains or alluvial fans. Ware and Sarpy soils formed in loamy or sandy alluvial deposits on natural levees along old channels.

Some of the soils in the county formed in material weathered from sandstone, siltstone, shale, limestone, or cherty limestone bedrock. In most areas these soils are in moderately steep to very steep areas on side slopes. Neotoma soils formed mainly in material weathered from siltstone and sandstone, Goss soils formed mainly in material weathered from cherty limestone, and Baxter soils formed in material weathered from both limestone and cherty limestone.

Some soils formed in loess and in the underlying material weathered from bedrock. Examples are Zanesville, Westmore, and Wellston soils. Zanesville and Wellston soils formed in loess overlying material weathered mainly from sandstone and siltstone. Westmore soils formed in a silty mantle overlying residuum weathered from shale or a mixture of shale and limestone and, in some places, sandstone and siltstone.

Plants and Animals

Living organisms, such as plants, animals, bacteria, and fungi, affect soil formation. Plant life is generally responsible for the amount of nutrients and organic matter in the soil and the color of the surface layer. Most of the soils in Union County formed under trees. As a result, they have a light-colored surface layer. Menfro and Hosmer soils are examples. Some soils formed mainly under grass and have a dark surface layer. These soils contain more organic matter than those which formed under trees. The dark Medway and Darwin soils on bottom lands are examples. Burrowing animals help to keep the soil open and porous. Bacteria and fungi aid in the decomposition of plant and animal remains.

Topography

Many differences among the soils in the county are the result of differences in topography. Slope, or the lay of the land, affects drainage, runoff, erosion, and deposition. Slopes differ in gradient, length, shape, and exposure. Some or all of these slope characteristics are responsible for the differences among the soils that formed in similar parent materials, such as Hosmer and Stoy soils. If the topography is similar, soils that formed in different parent materials have similar natural drainage characteristics. Menfro and Baxter soils are examples.

As slope increases, the rate of runoff and the extent of erosion increase. Erosion constantly changes characteristics of soils, as is evident in the severely eroded, eroded, and uneroded Menfro soils. In nearly level soils, water can move through the parent material and the subsoil has a higher content of clay than that of more sloping soils. Stoy soils are an example.

Climate

Climate influences the variety of plants and largely determines the type of weathering that takes place. The humid, temperate climate of Union County has favored the generally rapid weathering of soil material, the formation of clay, and the downward movement of this material in the profile. The subsoil in most upland soils in the county contains more clay than the surface layer. Soil temperatures vary somewhat throughout the county. The soils on bottom land along the Mississippi River are slightly warmer than the rest of the soils in the county, and the soils at the higher

elevations and on the north-facing slopes are cooler. More detailed information on the climate is available under the heading “General Nature of the County.”

Time

Time is required for the parent material to be changed into a soil. The change takes place slowly. The maturity of a soil is expressed in terms of the degree of profile development. Soils that formed in parent material of the same age can differ in maturity. Those that show little or no evidence of profile development are immature. Those that have well expressed horizons are mature. Both Haymond and Menfro soils formed in silty material. Haymond soils are young. These bottomland soils are still accumulating material deposited by floodwater and have only weakly expressed horizons. Menfro soils are considered mature because the time since deposition has been long enough for the development of a distinct profile.

Processes of Soil Formation

Soil forms through the complex interaction of four general processes *(19)*. These processes are *additions, transformations, removals,* and *translocations.* The degree of interaction of each of these processes in soil formation varies, resulting in the variety of soils that occur on the landscape.

Additions to the soil can occur directly through the deposition of sediment to the soil surface from flooding or through the accumulation of wind-blown sediment. The accumulation and incorporation of organic matter in the A horizon of mineral soils is also an addition. The most striking example of this addition is the formation of the mollic epipedon. The mollic epipedon forms in an environment that features optimum amounts of moisture, optimum temperatures, and bivalent cations. Such an environment allows grasses to thrive. The grassland vegetation produces large amounts of organic matter. Microbial decomposition of subsurface organic residues and organic residues from the surface taken underground by soil fauna results in the most recognizable property of the mollic epipedon—its dark color. Darwin soils are an example of soils that have a mollic epipedon.

Transformations are changes that take place in the soil through the interaction of biological, chemical, and physical processes. An example is the reduction of iron and manganese oxides, which occurs in soils saturated with water. Typically iron oxides coat soil particles and produce brownish, yellowish, or reddish colors, and manganese oxides produce black colors. When a soil becomes saturated with water and the dissolved oxygen is removed, anaerobic conditions develop. These conditions result in changes in the biochemical processes occurring in the soils and in the development of distinctive soil morphological characteristics (redoximorphic features). Reduced iron and manganese can move with the soil water to other parts of the soil or can be removed entirely from the soil through leaching. After the iron and manganese are gone, the leached area, or depletion, generally has a grayish or whitish color. If the reduced iron comes in contact with oxygen, it can reoxidize. The result is the formation of bright-colored concentrations or accumulations. Repeated cycles of saturation and drying create a mottled soil. Parts of the soil are gray because of the loss of iron, and other parts are brown because the iron oxide has accumulated or has not been removed. The somewhat poorly drained Stoy soils are an example of soils in which this process has occurred. If a soil remains saturated for long periods of time, iron may be leached from the soil. Such soils are generally grayish, or gleyed. The poorly drained Cape soils are an example.

Removals from the soil can occur as solid mineral and organic particles are lost through erosion from the soil surface layer. Such losses can be serious because the material lost is usually the most productive part of the soil profile. The strongly sloping

Menfro, Hosmer, and Winfield soils are examples of soils that are highly susceptible to removals by soil erosion.

Removals can also occur within the soil, commonly as a result of leaching. The leaching of calcium carbonate from calcareous loess is an example of a removal. The loess was initially high in calcium carbonate. Water percolating through the loess dissolved and transported the calcium carbonate deeper into the solum. Calcium carbonate is relatively soluble and is removed early in the formation of the soil. It is also a powerful flocculant, creating microscopic soil particles too large to be transported in suspension in the soil water. Removal of calcium carbonate facilitates the dispersion of clay particles. Translocation of the dispersed clay particles can then occur in percolating soil water. Zanesville and Westmore soils are an example of soils that have had significant removals through leaching.

Translocations are movements from one place to another in the soil. An example is the formation of an illuvial horizon through the translocation of clay from the A or E horizon, the zone of eluviation or loss, to the B horizon, the zone of illuviation or gain. In Menfro and Hosmer soils, for example, significant amounts of clay have accumulated, forming an illuvial horizon called an argillic horizon. The argillic horizon developed on a relatively old, stable landscape. Fine clay was transferred by water from rain and melting snow from the A or E horizon downward through the soil to the B horizon, where it was deposited on the faces of peds and along pores.

Geology

This section was prepared by Joseph A. Devera, Geologist, and David A. Grimley, Associate Geologist, Illinois State Geological Survey.

Physiography

Union County contains parts of three physiographic provinces: 1) the Ozark Plateaus, 2) the Interior Low Plateaus, and 3) the Gulf Coastal Plain *(14)*.

Uplands in the western and southwestern parts of the county are in the Salem Plateaus section of the Ozark Plateaus Province. The bedrock is dominantly composed of resistant, siliceous limestones of the Lower Devonian Period. The topography in this area is rugged, has steep V-shaped ravines, and has mature dendritic or trellis drainage patterns eroded into loess-covered uplands. This part of the county is sparsely populated and densely wooded.

The northeastern portion of the county is in the Shawnee Hills section of the Interior Low Plateaus Province. The bedrock is composed of Mississippian limestones that grade upward into cyclical limestones, shales, and sandstones. This part of the county has gentle to moderately rolling hills, which were predetermined by the bedrock. Karst topography is locally present at the base of some of the east- to west-trending hills. Most of the population in the county lives within the Shawnee Hills section.

The southern portion of Union County lies along the northernmost extent of the Gulf Coastal Plain Province. In this area broader alluvial valleys have streams that flow south to the Cache River. Farming, mainly cattle operations, is largely confined to bottom lands along the larger, north- to south-trending valleys.

The broad Mississippi River Valley occupies the westernmost portion of the county. The predominant land uses are row crop agriculture, forestland, and wetlands.

Bedrock Geology

Union County is one of the most geologically diverse counties in Illinois. This is a direct result of the tectonic complexity between the Ozark Dome and the

southwestern fringe of the Illinois Basin *(16)*. The three previously described physiographic provinces are directly related to three major structural areas that occur in the county. The Ozark Plateaus is part of the Ozark Dome Complex. The Shawnee Hills section of the Interior Low Plateaus is formed by the southern edge of the Illinois Basin. The Gulf Coastal Plain formed in the Mississippi Embayment.

The eastern flank of the Ozark Dome exposes the oldest rocks in the county. Ordovician carbonates crop out within the Harrison Creek Anticline, in the hills east of the Union County State Conservation Area. These rocks are about 443 million years old. Limestones and brick red, shaley limestones of Silurian age also occur in the area around the Harrison Creek Anticline. These rocks are about 440 million years old. Ordovician and Silurian rocks both represent an ancient shallow seaway that once existed in the area. A majority of the upland strata in the Ozark Plateaus are Devonian and are composed of cherty or siliceous limestones, which were deposited 410 to 400 million years ago. In this time period, there was relatively deeper marine deposition. Most the rocks in this area dip gently to the east, except in faulted areas. The Ste. Genevieve Fault Zone separates the rocks of the Ozark Dome from the Illinois Basin strata *(5, 6)*.

Strata of the southern edge of the Illinois Basin are Mississippian to Pennsylvanian in age. Surface bedrock dips gently to the north and northeast in Union County. Older, light gray limestones of the Mississippian Period are overlain by cycles of sandstone, shale, and limestone of younger Mississippian age. These limestones were deposited in warm shallow seas about 330 million years ago. The cyclic sandstones, shales, and thin limestones were deposited under marginal marine, subtidal, tidal, and deltaic conditions. These rocks are capped by a thick sequence of deltaic sandstone and shale layers of Pennsylvanian age. Coal is localized but does occur in the Pennsylvanian rocks in the northern part of the county.

The youngest sediments that occur in Union County are of Cretaceous and Tertiary age. They are part of the northernmost reaches of the Mississippi Embayment. Cretaceous sediments are made up of multicolored gray, yellow, red, orange, and brown quartz sand, silt, clay, and iron-cemented conglomerates. These sediments were deposited about 70 to 65 million years ago along the coastal plain of the ancient Gulf of Mexico. Younger Tertiary sediments include light gray to nearly black, rounded and polished quartz pebbles that are possibly 45 to 40 million years old *(7)*. These pebbles were deposited in old river beds.

Quaternary Geology

Surficial deposits in Union County consist dominantly of loess-covered (windblown silt) uplands and water-lain sediments in lowlands and river valleys. The loess-blanketed uplands have been heavily dissected by stream and ravine erosion since their deposition. The broad Mississippi River Valley in the westernmost portion of the county is the most extensive area of alluvial (water-lain) deposits and contains outwash at depth. A few of the wider tributary river valleys contain lake deposits near the surface. Because the county is almost entirely unglaciated, except for an extremely minor incursion of the Illinois Episode glacial margin in the northeasternmost portion of the county, immediately south of Devil's Kitchen Lake, glacial till deposits are virtually absent *(32)*. Deposits such as loess, lake sediment, and outwash, however, are indirectly related to glaciation in the upper Midwest and are important to understanding soil development. All such Quaternary deposits are underlain by bedrock or weathered bedrock. Long periods of weathering and erosion preceded deposition of Quaternary sediments, the bulk of which in Union County were deposited in the last 55,000 radiocarbon years.

The silty loess that blankets much of the county with mineralogically fresh but erodible soil was deposited as a result of large scale dust storms in the Mississippi

River Valley and to the north during the last glaciation (the Wisconsin Episode). Loess deposits typically range from silt to silt loam when unweathered and consist of the Peoria Silt (the upper and thicker unit) and the Roxana Silt. The Peoria Silt is commonly the loess unit which served as the parent material for surface soil development on uplands. The Peoria Silt is typically yellowish brown to gray, and the Roxana Silt is typically pinkish brown to gray. These units were deposited about 55,000 to 12,000 radiocarbon years ago *(11)*. Due to prevailing winds from the west and northwest and the orientation of the Mississippi Valley, loess thicknesses decrease dramatically to the northeast. In uneroded upland areas, the thickness of these two units combined ranges from more than 30 feet adjacent to the Mississippi River Valley in the western part of the county to about 8 feet in the northeastern part of the county *(10)*. Preserved below these loess deposits on some stable landscapes is a buried interglacial soil (the Sangamon Geosol) that developed into older loess deposits or merged with the bedrock-weathering profile.

Colluvial deposits, caused by the effects of gravity, occur in many sloping areas as a result of slumping, landslides, and creep. Some of these deposits were mapped by Weibel and Nelson as talus deposits, typically on or immediately below steeply sloping areas *(31)*. Colluvial deposits typically include redeposited loess and can be mixed with bedrock or weathered bedrock fragments.

Stream deposits consist of stratified gravel, sand, silt, and clay deposited during postglacial times. The grain size of stream alluvium varies considerably depending on the types of rock and sediment that occur in the drainage basin. Gravelly beds in streams are commonly derived from eroded chert layers in nearby bedrock outcrops. Silty alluvium is common in many flood plains as a result of redeposition of highly erodible loess deposits from uplands. In the Mississippi River Valley, a mixture of clay, silt, and sand was deposited near the surface in its flood plain. Some large abandoned channels and former swales of the Mississippi River are filled with more clayey sediment. Some alluvial fan deposits (generally silty to sandy in texture) occur on the edge of the Mississippi River Valley where sediment-bearing tributaries emanate from upland areas. Coarser rock debris occurs near the apexing point of emergence from the Mississippi River Bluffs. At depth, the Mississippi River Valley contains sand and gravel outwash deposited during the last glaciation (Wisconsin Episode). Lake deposits, predominantly stratified silty and clayey deposits, occur in some tributaries to the Mississippi Valley and also in the valleys of Cache Creek, Cypress Creek, and Big Creek as a result of backwater flooding of tributaries during high periods of glacial meltwater flow along the Mississippi River and Ancient Cache River (Wisconsin Episode). Some isolated lake deposits of Illinois Episode age may occur in the northeastern part of the county where the ice front of this earlier glaciation probably dammed several northward-heading streams *(32)*.

Economic Geology

The most significant geologic resources currently being extracted in the county are silica and limestone. To a lesser extent, shale and clay have been mined in the past. No commercial production of oil, gas, or coal has been reported in the county. A show of oil was reported from a bore hole that was drilled in the Devonian material of the Saratoga Anticline, about 6 miles northeast of Anna *(12)*.

Silica.—Numerous types of silica have been mined in Union County since the early 1900's *(3)*. One of the most important economic forms of silica is Tripoli. Tripoli is a white, soft variety of microcrystalline silica. It is used as an extender in hard plastics and reflective paints and as an abrasive in buffing and polishing compounds. Most of the mines are located south of Jonesboro, and a few are located west of Wolf Lake. All of the Tripoli mines in Union County are currently inactive *(3)*.

Limestone.—Union County contains abundant limestone resources and active

quarries. The Ste. Genevieve Limestone is quarried at the Anna Quarry in the Anna Quadrangle, and the Ullin Limestone is extracted from the Jonesboro Quarry. The softer Ste. Genevieve and Ullin Limestones are used for agricultural lime, and the harder more dolomitic beds of Ste. Genevieve and Ullin Limestones are used for road construction.

Clay.—Kaolinitic clay was mined in the early 1900's near the now abandoned village of Kaolin. The clay was a sedimentary deposit of Eocene age (about 40 million years old). It occurs in depressions (grabens) in Mississippian limestone near Iron Mountain.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.
AC soil. A soil having an A and a C horizon.
Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.
Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.
Alkali (sodic) soils. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.
Alluvial fan. The fanlike deposit of a stream where it isssues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.
Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.
Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.
Animal unit month (AUM). The amount of forage required by one cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.
Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.
Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.
Aspect. The direction in which a slope faces.
Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.
Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. Any tillage and planting system in which a cover of crop residue is maintained on at least 30 percent of the surface after planting in order to reduce the hazard of water erosion; in areas where wind erosion is the primary concern, a system that maintains a cover of at least 1,000 pounds of flat residue of small grain or its equivalent during the critical erosion period.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression. Any relatively sunken part of the earth's surface; especially a low-lying area surrounded by higher ground. A closed depression has no natural outlet for surface drainage. An open depression has a natural outlet for surface drainage.

Depth, soil. The thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep soils, 20 to 40 inches; shallow soils, 10 to 20 inches; and very shallow soils, less than 10 inches.

Depth to bedrock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate or high water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of most field crops are affected. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted under natural conditions. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poor drainage is caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops under natural conditions.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A relatively small, linear depression that, at some time, moves concentrated water and either does not have a defined channel or has a small, defined channel.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above a zone in which the soil moisture status is wet at all times.

Episaturation. A type of saturation indicating a perched zone in which the soil moisture status is wet in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building

up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. The term is more often applied to cliffs resulting from differential erosion.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called normal field capacity, normal moisture capacity, or capillary capacity.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is generally a constructional landform consisting of sediment deposited during overflow and lateral migration of the stream.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest habitat type. An association of dominant tree and ground flora species in a climax community.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Geomorphology. The science that treats the general configuration of the earth's surface; specifically the study of the classification, description, nature, origin, and development of landforms and their relationships to underlying structures and the history of geologic changes as recorded by these surface features. The term is especially applied to the genetic interpretation of landforms.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of underlying material below the top of where the soil moisture status is wet.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-chroma zones. Zones having chroma of 3 or more (the typical color in areas of iron concentrations).

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 6 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or

unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A, soils have a high infiltration rate when thoroughly wet and have a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, soils have a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a zone with wet soil moisture status high in the profile on a permanent basis, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron concentrations. High-chroma zones having a high content of iron and manganese oxide because of chemical oxidation and accumulation, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic concentration.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. The controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone, the formation of plow pans, the intake rate, and soil reaction.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$-bar or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine-grained material, dominantly of silt-sized particles, deposited by the wind.

Low-chroma zones. Zones having chroma of 2 or less (the typical color in areas of iron depletions).

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

MAP. Mean annual precipitation, expressed in inches.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Parent material. The unconsolidated organic and mineral material in which soil forms.

Parts per million (ppm). The concentration of a substance in the soil, such as phosphorus or potassium, in one million parts of air-dried soil on a weight per weight basis.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse-grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Burning an area under conditions of weather and soil moisture and at the time of day that will result in the intensity of heat and spread required to accomplish specific forest management, wildlife, grazing, or fire hazard reduction purposes.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key

plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth’s surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rise. A slight increase in elevation of the land surface, typically with a broad summit and gently sloping sides.

Riser. The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or a base level.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than rock-lined pits.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface

runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawtimber. Hardwood trees more than 11 inches in diameter and conifers more than 9 inches in diameter at breast height.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the

steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the substratum. The living roots and plant and animal activities are largely confined to the solum.

Sprinkler irrigation. A method of irrigation in which water is pumped through nozzles and sprayed, or sprinkled, through the air to the ground surface.

Stone line. A concentration of rock fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), blocky (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter or loosen a layer that restricts roots.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Swale. A slight depression in the midst of generally level land; a shallow depression in an undulating ground moraine due to uneven glacial deposition.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The relatively flat terrace surface that was cut or built by stream or wave action.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of

water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse-grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1961-90 at Anna, Illinois)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temp. higher than--	2 years in 10 will have-- Minimum temp. lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	40.8	22.5	31.7	67	-8	49	3.02	1.30	4.48	5	5.5
February-	45.9	26.3	36.1	71	0	80	3.38	1.76	4.80	5	4.8
March----	57.2	36.3	46.8	80	13	258	5.18	2.92	7.18	7	2.4
April----	68.4	46.4	57.4	87	27	519	4.60	2.72	6.27	7	0.2
May------	77.5	54.9	66.2	91	36	803	5.20	2.90	7.23	7	0.0
June-----	85.9	63.3	74.6	97	48	1,031	3.76	1.90	5.38	5	0.0
July-----	89.1	67.2	78.2	99	53	1,176	3.86	1.74	5.68	5	0.0
August---	87.5	65.3	76.4	99	51	1,123	3.88	1.58	5.83	5	0.0
September	80.7	58.6	69.7	95	40	885	3.29	1.39	4.90	5	0.0
October--	70.4	46.8	58.6	87	27	572	3.03	0.99	4.70	4	0.0
November-	57.2	37.8	47.5	78	15	259	4.16	2.20	5.88	6	0.5
December-	44.7	27.4	36.1	68	-1	81	4.33	2.09	6.27	6	2.7
Yearly:											
Average	67.1	46.1	56.6	---	---	---	---	---	---	---	---
Extreme	106	-17	---	101	-10	---	---	---	---	---	---
Total--	---	---	---	---	---	6,834	47.68	40.10	54.95	67	16.1

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Anna, Illinois)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 7	Apr. 10	Apr. 23
2 years in 10 later than--	Mar. 31	Apr. 5	Apr. 18
5 years in 10 later than--	Mar. 19	Mar. 27	Apr. 8
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 1	Oct. 26	Oct. 11
2 years in 10 earlier than--	Nov. 6	Oct. 30	Oct. 16
5 years in 10 earlier than--	Nov. 16	Nov. 9	Oct. 25

Table 3.—Growing Season

(Recorded in the period 1961-90 at Anna, Illinois)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	218	205	184
8 years in 10	226	212	189
5 years in 10	241	226	199
2 years in 10	256	240	208
1 year in 10	263	248	213

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
75B	Drury silt loam, 2 to 5 percent slopes	87	*
75C	Drury silt loam, 5 to 10 percent slopes	2,874	1.1
75C3	Drury silt loam, 5 to 10 percent slopes, severely eroded	347	0.1
75D	Drury silt loam, 10 to 18 percent slopes	2,518	0.9
79B	Menfro silt loam, 2 to 5 percent slopes	7,168	2.7
79C2	Menfro silt loam, 5 to 10 percent slopes, eroded	9,437	3.5
79C3	Menfro silt loam, 5 to 10 percent slopes, severely eroded	5,719	2.1
79D2	Menfro silt loam, 10 to 18 percent slopes, eroded	8,274	3.1
79D3	Menfro silt loam, 10 to 18 percent slopes, severely eroded	11,993	4.4
79E	Menfro silt loam, 18 to 25 percent slopes	17	*
79E2	Menfro silt loam, 18 to 25 percent slopes, eroded	3,221	1.2
79E3	Menfro silt loam, 18 to 25 percent slopes, severely eroded	2,262	0.8
79F	Menfro silt loam, 25 to 35 percent slopes	656	0.2
99G	Sandstone and limestone rock land, 35 to 90 percent slopes	592	0.2
164A	Stoy silt loam, 0 to 2 percent slopes	342	0.1
164B	Stoy silt loam, 2 to 5 percent slopes	2,550	0.9
214B	Hosmer silt loam, 2 to 5 percent slopes	14,005	5.2
214C2	Hosmer silt loam, 5 to 10 percent slopes, eroded	13,594	5.0
214C3	Hosmer silt loam, 5 to 10 percent slopes, severely eroded	14,724	5.4
214D2	Hosmer silt loam, 10 to 18 percent slopes, eroded	8,674	3.2
214D3	Hosmer silt loam, 10 to 18 percent slopes, severely eroded	12,175	4.5
477B	Winfield silt loam, 2 to 5 percent slopes	1,322	0.5
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded	4,965	1.8
477C3	Winfield silt loam, 5 to 10 percent slopes, severely eroded	176	*
477D2	Winfield silt loam, 10 to 18 percent slopes, eroded	10	*
477D3	Winfield silt loam, 10 to 18 percent slopes, severely eroded	5	*
692D	Menfro-Wellston silt loams, 10 to 18 percent slopes	7	*
692D2	Menfro-Wellston silt loams, 10 to 18 percent slopes, eroded	1,461	0.5
692F	Menfro-Wellston silt loams, 18 to 35 percent slopes	2,243	0.8
694D	Menfro-Baxter complex, 10 to 18 percent slopes	30	*
694D2	Menfro-Baxter complex, 10 to 18 percent slopes, eroded	328	0.1
694F	Menfro-Baxter complex, 18 to 35 percent slopes	1,577	0.6
801B	Orthents, silty, undulating	442	0.2
802D	Orthents, loamy, hilly	1,342	0.5
832F	Menfro-Clarksville complex, 18 to 35 percent slopes	13,890	5.1
832G	Clarksville-Menfro complex, 35 to 70 percent slopes	7,610	2.8
833F	Menfro-Goss complex, 18 to 35 percent slopes	5,376	2.0
833G	Goss-Menfro complex, 35 to 70 percent slopes	2,842	1.1
834F	Wellston-Westmore silt loams, 18 to 35 percent slopes	7,257	2.7
834G	Wellston-Westmore silt loams, 35 to 70 percent slopes	51	*
864	Pits, quarries	288	0.1
940D	Zanesville-Westmore silt loams, 10 to 18 percent slopes	198	*
940D2	Zanesville-Westmore silt loams, 10 to 18 percent slopes, eroded	7,792	2.9
977F	Wellston-Neotoma complex, 18 to 35 percent slopes	2,144	0.8
977G	Wellston-Neotoma complex, 35 to 70 percent slopes	11	*
1334A	Birds silt loam, undrained, 0 to 2 percent slopes, frequently flooded	1,088	0.4
1426A	Karnak silty clay, undrained, 0 to 2 percent slopes, frequently flooded	2,871	1.1
3071A	Darwin silty clay, 0 to 2 percent slopes, frequently flooded	491	0.2
3071L	Darwin silty clay, 0 to 2 percent slopes, frequently flooded, long duration	413	0.2
3092BL	Sarpy loamy fine sand, 1 to 8 percent slopes, frequently flooded, long duration	974	0.4
3162L	Gorham silty clay loam, 0 to 3 percent slopes, frequently flooded, long duration	40	*
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded	8	*
3288A	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded	598	0.2
3331A	Haymond silt loam, 0 to 3 percent slopes, frequently flooded	478	0.2

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Acres	Percent
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	850	0.3
3334A	Birds silt loam, 0 to 2 percent slopes, frequently flooded	746	0.3
3426A	Karnak silty clay, 0 to 2 percent slopes, frequently flooded	434	0.2
3456B	Ware fine sandy loam, 1 to 6 percent slopes, frequently flooded	1,170	0.4
3590L	Cairo silty clay, 0 to 2 percent slopes, frequently flooded, long duration	1,222	0.5
3682BL	Medway silty clay loam, 1 to 6 percent slopes, frequently flooded, long duration	2,220	0.8
5079B2	Menfro silt loam, karst, 2 to 5 percent slopes, eroded	1,330	0.5
5079C3	Menfro silt loam, karst, 5 to 10 percent slopes, severely eroded	2,747	1.0
5079D3	Menfro silt loam, karst, 10 to 18 percent slopes, severely eroded	1,614	0.6
5079E3	Menfro silt loam, karst, 18 to 25 percent slopes, severely eroded	93	*
5214B2	Hosmer silt loam, karst, 2 to 5 percent slopes, eroded	52	*
5214C3	Hosmer silt loam, karst, 5 to 10 percent slopes, severely eroded	107	*
5214D3	Hosmer silt loam, karst, 10 to 18 percent slopes, severely eroded	15	*
8071A	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded	2,820	1.0
8085A	Jacob silty clay, 0 to 2 percent slopes, occasionally flooded	2,803	1.0
8092B	Sarpy loamy fine sand, 1 to 8 percent slopes, occasionally flooded	287	0.1
8162A	Gorham silty clay loam, 0 to 3 percent slopes, occasionally flooded	1,051	0.4
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded	539	0.2
8284A	Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded	1,034	0.4
8331A	Haymond silt loam, 0 to 3 percent slopes, occasionally flooded	8,799	3.3
8333A	Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded	15,306	5.7
8334A	Birds silt loam, 0 to 2 percent slopes, occasionally flooded	2,057	0.8
8420A	Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded	667	0.2
8422A	Cape silty clay loam, 0 to 2 percent slopes, occasionally flooded	846	0.3
8426A	Karnak clay, 0 to 2 percent slopes, occasionally flooded	4,521	1.7
8427B	Burnside silt loam, 1 to 4 percent slopes, occasionally flooded	1,805	0.7
8456B	Ware loam, 1 to 6 percent slopes, occasionally flooded	4,665	1.7
8475B	Elsah silt loam, 1 to 4 percent slopes, occasionally flooded	4,866	1.8
8589B	Bowdre silty clay, 1 to 6 percent slopes, occasionally flooded	2,370	0.9
8590A	Cairo silty clay, 0 to 2 percent slopes, occasionally flooded	3,290	1.2
8682B	Medway silty clay loam, 1 to 6 percent slopes, occasionally flooded	3,733	1.4
8787A	Banlic silt loam, 0 to 2 percent slopes, occasionally flooded	518	0.2
MW	Miscellaneous water	7	*
W	Water	6,144	2.3
	Total	270,285	100.0

* Less than 0.1 percent.

Table 5.—Limitations and Hazards for Cropland and Pastureland

(See text for a description of the limitations and hazards listed in this table. Absence of an entry indicates the map unit is generally unsuited to cropland or to pastureland)

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
75B, 75C:		
Drury	Water erosion	Water erosion
75C3:		
Drury	Water erosion	Water erosion, low fertility
75D:		
Drury	Water erosion	Water erosion
79B, 79C2:		
Menfro	Crusting, water erosion	Low pH, water erosion
79C3:		
Menfro	Crusting, water erosion	Low pH, water erosion, low fertility
79D2:		
Menfro	Crusting, water erosion	Low pH, water erosion
79D3:		
Menfro	Crusting, water erosion	Low pH, water erosion, low fertility
79E, 79E2, 79E3, 79F:		
Menfro	---	Equipment limitation, low pH, water erosion
99G:		
Sandstone and limestone rock land	---	Generally unsuited
164A:		
Stoy	Wetness, crusting, restricted permeability	Wetness, low pH
164B:		
Stoy	Wetness, crusting, water erosion, restricted permeability	Wetness, low pH, water erosion
214B, 214C2, 214C3, 214D2:		
Hosmer	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability	Wetness, root-restrictive layer, low pH, water erosion
214D3:		
Hosmer	---	Wetness, root-restrictive layer, low pH, water erosion, low fertility
477B, 477C2:		
Winfield	Crusting, water erosion	Low pH, water erosion

Table 5.—Limitations and Hazards for Cropland and Pastureland—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
477C3:		
Winfield	Crusting, water erosion	Low pH, water erosion, low fertility
477D2:		
Winfield	Crusting, water erosion	Low pH, water erosion
477D3:		
Winfield	Crusting, water erosion	Low pH, water erosion, low fertility
692D, 692D2:		
Menfro	Crusting, water erosion	Low pH, water erosion
Wellston	Depth to bedrock, crusting, water erosion	Depth to bedrock, low pH, water erosion
692F:		
Menfro	---	Equipment limitation, low pH, water erosion
Wellston	---	Equipment limitation, depth to bedrock, low pH, water erosion
694D, 694D2:		
Menfro	Crusting, water erosion	Low pH, water erosion
Baxter	Water erosion	Low pH, water erosion
694F:		
Menfro	---	Equipment limitation, low pH, water erosion
Baxter	---	Equipment limitation, low pH, water erosion
801B:		
Orthents	Wetness, crusting, water erosion	Wetness, low pH, water erosion, low fertility
802D:		
Orthents	Water erosion, restricted permeability	Water erosion, low fertility
832F:		
Menfro	---	Equipment limitation, low pH, water erosion
Clarksville	---	Equipment limitation, low pH, water erosion
832G:		
Clarksville	---	Generally unsuited
Menfro	---	Generally unsuited

Table 5.—Limitations and Hazards for Cropland and Pastureland—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
833F:		
Menfro	---	Equipment limitation, low pH, water erosion
Goss	---	Equipment limitation, low pH, water erosion
833G:		
Goss	---	Generally unsuited
Menfro	---	Generally unsuited
834F:		
Wellston	---	Equipment limitation, depth to bedrock, low pH, water erosion
Westmore	---	Equipment limitation, low pH, water erosion
834G:		
Wellston	---	Generally unsuited
Westmore	---	Generally unsuited
864:		
Pits	Low pH, limited available water capacity, restricted permeability	Low pH, limited available water capacity, low fertility
940D, 940D2:		
Zanesville	Root-restrictive layer, crusting, water erosion, restricted permeability	Root-restrictive layer, low pH, water erosion, low fertility
Westmore	Crusting, water erosion, restricted permeability	Low pH, water erosion
977F:		
Wellston	---	Equipment limitation, depth to bedrock, low pH, water erosion
Neotoma	---	Equipment limitation, surface rock fragments, depth to bedrock, low pH, water erosion
977G:		
Wellston	---	Generally unsuited
Neotoma	---	Generally unsuited
1334A:		
Birds	---	Flooding, ponding, low pH, frost heave
1426A:		
Karnak	---	Flooding, ponding, poor tilth, frost heave

Table 5.—Limitations and Hazards for Cropland and Pastureland—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
3071A:		
Darwin	Flooding, ponding, poor tilth, restricted permeability	Flooding, ponding, frost heave
3071L:		
Darwin	---	Flooding, ponding, frost heave
3092BL:		
Sarpy	---	Flooding, high pH, wind erosion, limited available water capacity, low fertility, excess lime, excessive permeability
3162L:		
Gorham	---	Flooding, ponding, low pH, frost heave
3180A:		
Dupo	Flooding, wetness, excess lime, restricted permeability	Flooding, wetness, excess lime
3288A:		
Petrolia	Flooding, ponding, poor tilth, crusting, restricted permeability	Flooding, ponding, poor tilth, frost heave
3331A:		
Haymond	Flooding, water erosion	Flooding
3333A:		
Wakeland	Flooding, wetness	Flooding, wetness
3334A:		
Birds	Flooding, ponding, crusting, restricted permeability	Flooding, ponding, low pH, frost heave
3426A:		
Karnak	Flooding, ponding, poor tilth, restricted permeability	Flooding, ponding, poor tilth, frost heave
3456B:		
Ware	Flooding, very excessive lime, water erosion	Flooding, very excessive lime
3590L:		
Cairo	---	Flooding, ponding, frost heave, excessive permeability
3682BL:		
Medway	---	Flooding, water erosion, excess lime

Table 5.—Limitations and Hazards for Cropland and Pastureland—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
5079B2, 5079C3:		
Menfro	Crusting, water erosion	Low pH, water erosion
5079D3:		
Menfro	Crusting, water erosion	Low pH, water erosion, low fertility
5079E3:		
Menfro	---	Equipment limitation, low pH, water erosion, low fertility
5214B2:		
Hosmer	Wetness, root-restrictive layer, water erosion, restricted permeability	Wetness, root-restrictive layer, low pH, water erosion
5214C3:		
Hosmer	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability	Wetness, root-restrictive layer, low pH, water erosion, low fertility
5214D3:		
Hosmer	---	Wetness, root-restrictive layer, low pH, water erosion, low fertility
8071A:		
Darwin	Flooding, ponding, poor tilth, restricted permeability	Flooding, ponding, frost heave
8085A:		
Jacob	Flooding, ponding, poor tilth, low pH, restricted permeability	Flooding, ponding, poor tilth, low pH, frost heave
8092B:		
Sarpy	Flooding, high pH, excess lime, wind erosion, limited available water capacity, excessive permeability	Flooding, high pH, wind erosion, limited available water capacity, low fertility, excess lime, excessive permeability
8162A:		
Gorham	Flooding, ponding, restricted permeability	Flooding, ponding, low pH, frost heave
8180A:		
Dupo	Flooding, wetness, excess lime, restricted permeability	Flooding, wetness, excess lime
8284A:		
Tice	Flooding, wetness, poor tilth, crusting	Flooding, wetness, poor tilth
8331A:		
Haymond	Flooding, water erosion	Flooding
8333A:		
Wakeland	Flooding, wetness	Flooding, wetness

Table 5.—Limitations and Hazards for Cropland and Pastureland—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
8334A:		
Birds	Flooding, ponding, crusting, restricted permeability	Flooding, ponding, low pH, frost heave
8420A:		
Piopolis	Flooding, ponding, poor tilth, crusting, restricted permeability	Flooding, ponding, poor tilth, low pH, frost heave
8422A:		
Cape	Flooding, ponding, poor tilth, low pH, restricted permeability	Flooding, ponding, poor tilth, low pH, frost heave
8426A:		
Karnak	Flooding, ponding, poor tilth, restricted permeability	Flooding, ponding, poor tilth, frost heave
8427B:		
Burnside	Flooding, depth to bedrock, crusting, water erosion	Flooding, depth to bedrock, low pH
8456B:		
Ware	Flooding, excess lime, water erosion	Flooding, excess lime
8475B:		
Elsah	Flooding, crusting, water erosion	Flooding, water erosion
8589B:		
Bowdre	Flooding, wetness, poor tilth, water erosion, restricted permeability	Flooding, wetness, poor tilth, low fertility
8590A:		
Cairo	Flooding, ponding, poor tilth, restricted permeability, excessive permeability	Flooding, ponding, frost heave, excessive permeability
8682B:		
Medway	Flooding, water erosion	Flooding, water erosion
8787A:		
Banlic	Flooding, wetness, restricted permeability	Flooding, wetness, low pH
MW:		
Miscellaneous water	Low pH, limited available water capacity, restricted permeability	Low pH, limited available water capacity, low fertility
W:		
Water	Low pH, limited available water capacity, restricted permeability	Low pH, limited available water capacity, low fertility

Table 6.—Land Capability and Yields Per Acre of Cropland and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Yield data applies to the map unit as a whole. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Grain sorghum	Grass-legume hay	Grass-legume pasture	Soybeans	Winter wheat
		Bu	Bu	Tons	AUM	Bu	Bu
75B:		154.00	---	5.15	7.60	48.00	60.00
Drury	2e						
75C:		151.00	---	5.00	7.40	47.00	59.00
Drury	3e						
75C3:		134.00	---	4.50	6.40	41.00	52.00
Drury	3e						
75D:		139.00	---	4.60	6.80	43.00	54.00
Drury	4e						
79B:		148.00	109.00	4.40	6.40	46.00	56.00
Menfro	2e						
79C2:		139.00	102.00	4.10	6.00	43.00	53.00
Menfro	3e						
79C3:		128.00	95.00	3.80	5.50	40.00	49.00
Menfro	4e						
79D2:		127.00	94.00	3.80	5.40	39.00	49.00
Menfro	4e						
79D3:		116.00	86.00	3.40	4.90	36.00	45.00
Menfro	4e						
79E:		---	---	3.50	5.10	---	---
Menfro	6e						
79E2:		---	---	3.30	4.70	---	---
Menfro	6e						
79E3:		---	---	3.00	4.20	---	---
Menfro	6e						
79F:		---	---	2.70	3.80	---	---
Menfro	6e						
99G:							
Sandstone and limestone rock land	7e	---	---	---	---	---	---
164A:		131.00	102.00	4.20	6.20	42.00	52.00
Stoy	2w						
164B:		130.00	101.00	4.10	6.00	42.00	51.00
Stoy	2e						
214B:		125.00	98.00	3.30	4.70	41.00	51.00
Hosmer	2e						
214C2:		113.00	89.00	3.00	4.20	37.00	47.00
Hosmer	3e						

Table 6.—Land Capability and Yields Per Acre of Cropland and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Grass-legume hay	Grass-legume pasture	Soybeans	Winter wheat
		Bu	Bu	Tons	AUM	Bu	Bu
214C3:		93.00	73.00	2.40	3.50	30.00	38.00
Hosmer	4e						
214D2:		101.00	79.00	2.60	3.70	33.00	42.00
Hosmer	4e						
214D3:		---	---	2.10	3.10	---	---
Hosmer	6e						
477B:		145.00	110.00	4.50	6.60	45.00	56.00
Winfield	2e						
477C2:		136.00	103.00	4.20	6.20	42.00	53.00
Winfield	3e						
477C3:		126.00	95.00	3.90	5.60	39.00	49.00
Winfield	4e						
477D2:		124.00	94.00	3.80	5.60	38.00	48.00
Winfield	4e						
477D3:		114.00	87.00	3.50	5.00	35.00	44.00
Winfield	4e						
692D:		115.00	---	3.40	5.10	37.00	45.00
Menfro	4e						
Wellston	4e						
692D2:		106.00	---	3.20	4.60	34.00	41.00
Menfro	4e						
Wellston	4e						
692F:		---	---	2.25	3.30	---	---
Menfro	6e						
Wellston	6e						
694D:		109.00	---	3.50	5.10	36.00	43.00
Menfro	4e						
Baxter	4e						
694D2:		104.00	---	3.30	4.80	34.00	41.00
Menfro	4e						
Baxter	4e						
694F:		---	---	2.34	3.40	---	---
Menfro	6e						
Baxter	6e						
801B:		---	---	---	---	---	---
Orthents	2e						
802D:		---	---	---	---	---	---
Orthents	3e						
832F:		---	---	2.10	3.10	---	---
Menfro	6e						
Clarksville	6e						

Table 6.—Land Capability and Yields Per Acre of Cropland and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Grass-legume hay	Grass-legume pasture	Soybeans	Winter wheat
		Bu	Bu	Tons	AUM	Bu	Bu
832G:		---	---	---	---	---	---
Clarksville----------------	7e						
Menfro------------------	7e						
833F:		---	---	2.10	3.10	---	---
Menfro------------------	6e						
Goss--------------------	6e						
833G:		---	---	---	---	---	---
Goss--------------------	7e						
Menfro------------------	7e						
834F:		---	---	1.85	2.65	---	---
Wellston----------------	6e						
Westmore----------------	6e						
834G:		---	---	---	---	---	---
Wellston----------------	7e						
Westmore----------------	7e						
864.							
Pits							
940D:		96.00	---	2.90	4.30	33.00	39.00
Zanesville--------------	4e						
Westmore----------------	4e						
940D2:		88.00	---	2.70	3.90	30.00	36.00
Zanesville--------------	4e						
Westmore----------------	4e						
977F:		---	---	2.00	2.90	---	---
Wellston----------------	6e						
Neotoma-----------------	6e						
977G:		---	---	---	---	---	---
Wellston----------------	7e						
Neotoma-----------------	7e						
1334A:		---	---	---	---	---	---
Birds-------------------	5w						
1426A:		---	---	---	---	---	---
Karnak------------------	5w						
3071A:		121.00	---	3.56	5.20	42.00	---
Darwin------------------	4w						
3071L:		---	---	---	---	---	---
Darwin------------------	5w						
3092BL:		---	---	---	---	---	---
Sarpy-------------------	5w						
3162L:		---	---	---	---	---	---
Gorham------------------	5w						
3180A:		148.00	---	4.20	6.10	46.00	---
Dupo--------------------	3w						

Table 6.—Land Capability and Yields Per Acre of Cropland and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Grass-legume hay	Grass-legume pasture	Soybeans	Winter wheat
		Bu	Bu	Tons	AUM	Bu	Bu
3288A:		131.00	---	4.00	5.90	40.00	---
Petrolia	3w						
3331A:		147.00	---	4.68	6.90	46.00	---
Haymond	2w						
3333A:		141.00	---	4.17	6.10	46.00	---
Wakeland	2w						
3334A:		127.00	---	3.97	5.80	42.00	---
Birds	3w						
3426A:		109.00	---	3.26	4.80	37.00	---
Karnak	3w						
3456B:		127.00	---	4.13	6.10	41.00	---
Ware	3s						
3590L:		---	---	---	---	---	---
Cairo	5w						
3682BL:		---	---	---	---	---	---
Medway	5w						
5079B2:		142.00	105.00	4.19	6.20	44.00	54.00
Menfro	2e						
5079C3:		128.00	95.00	3.79	5.50	40.00	49.00
Menfro	4e						
5079D3:		116.00	86.00	3.44	4.90	36.00	45.00
Menfro	4e						
5079E3:		---	---	3.00	4.20	---	---
Menfro	6e						
5214B2:		117.00	92.00	3.10	4.50	38.00	48.00
Hosmer	2e						
5214C3:		93.00	73.00	2.40	4.00	30.00	38.00
Hosmer	4e						
5214D3:		---	---	2.10	3.10	---	---
Hosmer	6e						
8071A:		134.00	---	3.96	5.80	45.00	54.00
Darwin	3w						
8085A:		95.00	---	3.05	4.50	35.00	38.00
Jacob	4w						
8092B:		98.00	---	3.36	4.90	33.00	36.00
Sarpy	4s						
8162A:		140.00	---	4.10	4.60	46.00	54.00
Gorham	2w						

Table 6.—Land Capability and Yields Per Acre of Cropland and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Grass-legume hay	Grass-legume pasture	Soybeans	Winter wheat
		Bu	Bu	Tons	AUM	Bu	Bu
8180A:		164.00	---	4.60	6.80	51.00	61.00
Dupo	3w						
8284A:		166.00	---	5.09	7.50	51.00	63.00
Tice	2w						
8331A:		163.00	---	5.20	7.70	51.00	63.00
Haymond	2w						
8333A:		157.00	---	4.63	6.80	51.00	61.00
Wakeland	2w						
8334A:		141.00	---	4.41	6.50	46.00	55.00
Birds	2w						
8420A:		128.00	---	3.96	5.80	44.00	53.00
Piopolis	3w						
8422A:		123.00	---	3.84	5.70	42.00	52.00
Cape	3w						
8426A:		121.00	---	3.62	5.30	41.00	47.00
Karnak	3w						
8427B:		115.00	---	2.83	4.10	39.00	46.00
Burnside	2e						
8456B:		142.00	---	4.58	6.70	46.00	56.00
Ware	2s						
8475B:		131.00	---	3.73	5.50	44.00	50.00
Elsah	2s						
8589B:		136.00	---	4.03	5.90	43.00	51.00
Bowdre	2w						
8590A:		143.00	---	4.29	6.30	48.00	55.00
Cairo	3w						
8682B:		157.00	---	5.03	7.40	50.00	61.00
Medway	2e						
8787A:		128.00	---	4.20	6.20	42.00	51.00
Banlic	2w						
MW.							
Miscellaneous water							
W.							
Water							

Table 7.—Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
75B	Drury silt loam, 2 to 5 percent slopes
79B	Menfro silt loam, 2 to 5 percent slopes
164A	Stoy silt loam, 0 to 2 percent slopes
164B	Stoy silt loam, 2 to 5 percent slopes
214B	Hosmer silt loam, 2 to 5 percent slopes
477B	Winfield silt loam, 2 to 5 percent slopes
3071A	Darwin silty clay, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded (if protected from flooding or not frequently flooded during the growing season)
3288A	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3331A	Haymond silt loam, 0 to 3 percent slopes, frequently flooded (if protected from flooding or not frequently flooded during the growing season)
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3334A	Birds silt loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3456B	Ware fine sandy loam, 1 to 6 percent slopes, frequently flooded (if protected from flooding or not frequently flooded during the growing season)
5079B2	Menfro silt loam, karst, 2 to 5 percent slopes, eroded
5214B2	Hosmer silt loam, karst, 2 to 5 percent slopes, eroded
8071A	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded (if drained)
8162A	Gorham silty clay loam, 0 to 3 percent slopes, occasionally flooded (if drained)
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
8284A	Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded
8331A	Haymond silt loam, 0 to 3 percent slopes, occasionally flooded
8333A	Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded (if drained)
8334A	Birds silt loam, 0 to 2 percent slopes, occasionally flooded (if drained)
8420A	Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded (if drained)
8422A	Cape silty clay loam, 0 to 2 percent slopes, occasionally flooded (if drained)
8427B	Burnside silt loam, 1 to 4 percent slopes, occasionally flooded
8456B	Ware loam, 1 to 6 percent slopes, occasionally flooded
8475B	Elsah silt loam, 1 to 4 percent slopes, occasionally flooded
8589B	Bowdre silty clay, 1 to 6 percent slopes, occasionally flooded
8590A	Cairo silty clay, 0 to 2 percent slopes, occasionally flooded (if drained)
8682B	Medway silty clay loam, 1 to 6 percent slopes, occasionally flooded
8787A	Banlic silt loam, 0 to 2 percent slopes, occasionally flooded (if drained)

Table 8.—Forestland Management, Part I

Map symbol and soil name	Construction of haul roads and major skid trails	Suitability of log landings	Suitability of equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
75B:			
Drury	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
75C, 75C3:			
Drury	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
75D:			
Drury	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
79B:			
Menfro	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
79C2, 79C3:			
Menfro	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
79D2, 79D3:			
Menfro	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
79E, 79E2, 79E3, 79F:			
Menfro	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
99G:			
Sandstone and limestone rock land	Not rated	Not rated	Not rated
164A, 164B:			
Stoy	Moderate Low strength	Moderately suited Low strength Wetness	Moderately suited Low strength
214B:			
Hosmer	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
214C2, 214C3:			
Hosmer	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
214D2, 214D3:			
Hosmer	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength

Table 8.—Forestland Management, Part I—Continued

Map symbol and soil name	Constuction of haul roads of major skid trails	Suitability of log landings	Suitability of equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
477B:			
Winfield	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
477C2:			
Winfield	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
477C3:			
Winfield	Slight	Moderately suited Low strength Slope	Moderately suited Low strength
477D2:			
Winfield	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
477D3:			
Winfield	Slight	Poorly suited Slope Low strength	Moderately suited Low strength
692D, 692D2:			
Menfro	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
Wellston	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
692F:			
Menfro	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Wellston	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
694D, 694D2:			
Menfro	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
Baxter	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
694F:			
Menfro	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Baxter	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope

Table 8.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction of haul roads and major skid trails	Suitability of log landings	Suitability of equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
801B:			
Orthents	Moderate Low strength	Moderately suited Low strength Wetness	Moderately suited Low strength
802D:			
Orthents	Moderate Low strength	Moderately suited Slope Low strength	Moderately suited Low strength
832F:			
Menfro	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Clarksville	Moderate Slope Stickiness/slope	Poorly suited Slope	Moderately suited Slope
832G:			
Clarksville	Severe Slope	Poorly suited Slope	Poorly suited Slope
Menfro	Severe Slope Low strength	Poorly suited Slope Low strength	Poorly suited Slope Low strength
833F:			
Menfro	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Goss	Moderate Slope Stickiness/slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
833G:			
Goss	Severe Slope	Poorly suited Slope Low strength	Poorly suited Slope Low strength
Menfro	Severe Slope Low strength	Poorly suited Slope Low strength	Poorly suited Slope Low strength
834F:			
Wellston	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Westmore	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
834G:			
Wellston	Severe Slope Low strength	Poorly suited Slope Low strength	Poorly suited Slope Low strength

Table 8.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction of haul roads and major skid trails	Suitability of log landings	Suitability of equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
834G:			
Westmore	Severe Slope Low strength	Poorly suited Slope Low strength	Poorly suited Slope Low strength
864:			
Pits	Not rated	Not rated	Not rated
940D, 940D2:			
Zanesville	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
Westmore	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
977F:			
Wellston	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Neotoma	Moderate Slope Restrictive layer	Poorly suited Slope	Moderately suited Slope
977G:			
Wellston	Severe Slope Low strength	Poorly suited Slope Low strength	Poorly suited Slope Low strength
Neotoma	Severe Slope	Poorly suited Slope	Poorly suited Slope
1334A:			
Birds	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Low strength Wetness	Poorly suited Wetness Low strength
1426A:			
Karnak	Severe Flooding Wetness Low strength Stickiness/slope	Poorly suited Ponding Flooding Low strength Wetness Stickiness; high plasticity index	Poorly suited Wetness Low strength Stickiness; high plasticity index
3071A, 3071L:			
Darwin	Severe Flooding Wetness Low strength Stickiness/slope	Poorly suited Ponding Flooding Low strength Wetness Stickiness; high plasticity index	Poorly suited Wetness Low strength Stickiness; high plasticity index

Table 8.—Forestland Management, Part I—Continued

Map symbol and soil name	Constuction of haul roads and major skid trails	Suitability of log landings	Suitability of equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
3092BL:			
Sarpy	Severe Flooding	Poorly suited Flooding	Well suited
3162L:			
Gorham	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Low strength Wetness	Poorly suited Wetness Low strength
3180A:			
Dupo	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
3288A:			
Petrolia	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Low strength Wetness	Poorly suited Wetness Low strength
3331A:			
Haymond	Severe Flooding Low strength	Poorly suited Flooding Low strength	Moderately suited Low strength
3333A:			
Wakeland	Severe Flooding Low strength	Poorly suited Flooding Low strength Wetness	Moderately suited Low strength
3334A:			
Birds	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Low strength Wetness	Poorly suited Wetness Low strength
3426A:			
Karnak	Severe Flooding Wetness Low strength Stickiness/slope	Poorly suited Ponding Flooding Low strength Wetness Stickiness; high plasticity index	Poorly suited Wetness Low strength Stickiness; high plasticity index
3456B:			
Ware	Severe Flooding	Poorly suited Flooding	Well suited

Table 8.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction of haul roads and major skid trails	Suitability of log landings	Suitability of equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
3590L:			
Cairo	Severe Flooding Wetness Stickiness/slope Low strength	Poorly suited Ponding Flooding Stickiness; high plasticity index Low strength Wetness	Poorly suited Wetness Low strength Stickiness; high plasticity index
3682BL:			
Medway	Severe Flooding Low strength	Poorly suited Flooding Low strength	Moderately suited Low strength
5079B2:			
Menfro	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
5079C3:			
Menfro	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
5079D3:			
Menfro	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
5079E3:			
Menfro	Moderate Slope Low strength	Poorly suited Slope Low strength	Moderately suited Low strength Slope
5214B2:			
Hosmer	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
5214C3:			
Hosmer	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
5214D3:			
Hosmer	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
8071A:			
Darwin	Severe Flooding Wetness Low strength Stickiness/slope	Poorly suited Ponding Flooding Low strength Wetness Stickiness; high plasticity index	Poorly suited Wetness Low strength Stickiness; high plasticity index
8085A:			
Jacob	Severe Flooding Wetness Stickiness/slope Low strength	Poorly suited Ponding Flooding Stickiness; high plasticity index Low strength Wetness	Poorly suited Wetness Low strength Stickiness; high plasticity index

Table 8.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction of haul roads and major skid trails	Suitability of log landings	Suitability of equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
8092B:			
Sarpy	Severe Flooding	Poorly suited Flooding	Well suited
8162A:			
Gorham	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Low strength Wetness	Poorly suited Wetness Low strength
8180A:			
Dupo	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
8284A:			
Tice	Severe Flooding Low strength	Poorly suited Flooding Low strength Wetness	Moderately suited Low strength
8331A:			
Haymond	Severe Flooding Low strength	Poorly suited Flooding Low strength	Moderately suited Low strength
8333A:			
Wakeland	Severe Flooding Low strength	Poorly suited Flooding Low strength Wetness	Moderately suited Low strength
8334A:			
Birds	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Low strength Wetness	Poorly suited Wetness Low strength
8420A:			
Piopolis	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Low strength Wetness	Poorly suited Wetness Low strength
8422A:			
Cape	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Wetness Low strength	Poorly suited Wetness Low strength

Table 8.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction of haul roads and major skid trails	Suitability of log landings	Suitability of equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
8426A:			
Karnak	Severe Flooding Wetness Low strength Stickiness/slope	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index	Poorly suited Wetness Low strength Stickiness; high plasticity index
8427B:			
Burnside	Severe Flooding Low strength	Poorly suited Flooding Low strength	Moderately suited Low strength
8456B:			
Ware	Severe Flooding	Poorly suited Flooding	Well suited
8475B:			
Elsah	Severe Flooding Low strength	Poorly suited Flooding Low strength	Moderately suited Low strength
8589B:			
Bowdre	Severe Flooding Low strength Stickiness/slope	Poorly suited Flooding Low strength Wetness Stickiness; high plasticity index	Moderately suited Low strength Stickiness; high plasticity index
8590A:			
Cairo	Severe Flooding Wetness Stickiness/slope Low strength	Poorly suited Ponding Flooding Stickiness; high plasticity index Low strength Wetness	Poorly suited Wetness Low strength Stickiness; high plasticity index
8682B:			
Medway	Severe Flooding Low strength	Poorly suited Flooding Low strength	Moderately suited Low strength
8787A:			
Banlic	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
MW:			
Miscellaneous water	Not rated	Not rated	Not rated
W:			
Water	Not rated	Not rated	Not rated

Table 8.—Forestland Managment, Part II

Map symbol and soil name	Suitability for mechanized site preparation	Limitations affecting prescribed burning
	Rating class and limiting features	Rating class and limiting features
75B, 75C, 75C3, 75D:		
Drury	Well suited	Slight
79B, 79C2, 79C3, 79D2, 79D3:		
Menfro	Well suited	Slight
79E, 79E2, 79E3, 79F:		
Menfro	Poorly suited Slope	Slight
99G:		
Sandstone and limestone rock land	Not rated	Not rated
164A, 164B:		
Stoy	Well suited	Slight
214B, 214C2, 214C3, 214D2, 214D3:		
Hosmer	Well suited	Moderate Root restriction
477B, 477C2, 477C3, 477D2, 477D3:		
Winfield	Well suited	Slight
692D, 692D2:		
Menfro	Well suited	Slight
Wellston	Well suited	Slight
692F:		
Menfro	Poorly suited Slope	Slight
Wellston	Poorly suited Slope	Slight
694D, 694D2:		
Menfro	Well suited	Slight
Baxter	Well suited	Slight
694F:		
Menfro	Poorly suited Slope	Slight
Baxter	Poorly suited Slope	Slight
801B, 802D:		
Orthents	Well suited	Slight
832F:		
Menfro	Poorly suited Slope	Slight
Clarksville	Poorly suited Slope	Moderate Somewhat excessive drainage

Table 8.—Forestland Managment, Part II—Continued

Map symbol and soil name	Suitability for mechanized site preparation: Rating class and limiting features	Limitations affecting prescribed burning: Rating class and limiting features
832G:		
Clarksville	Unsuited Slope	Moderate Somewhat excessive drainage Slope
Menfro	Unsuited Slope	Moderate Slope
833F:		
Menfro	Poorly suited Slope	Slight
Goss	Poorly suited Slope	Slight
833G:		
Goss	Unsuited Slope	Moderate Slope
Menfro	Unsuited Slope	Moderate Slope
834F:		
Wellston	Poorly suited Slope	Slight
Westmore	Poorly suited Slope	Slight
834G:		
Wellston	Unsuited Slope	Moderate Slope
Westmore	Unsuited Slope	Moderate Slope
864:		
Pits	Not rated	Not rated
940D, 940D2:		
Zanesville	Well suited	Moderate Root restriction
Westmore	Well suited	Slight
977F:		
Wellston	Poorly suited Slope	Slight
Neotoma	Poorly suited Slope Rock fragments	Slight
977G:		
Wellston	Unsuited Slope	Moderate Slope
Neotoma	Unsuited Slope Rock fragments	Moderate Slope

Table 8.—Forestland Managment, Part II—Continued

Map symbol and soil name	Suitability for mechanized site preparation: Rating class and limiting features	Limitations affecting prescribed burning: Rating class and limiting features
1334A:		
Birds	Unsuited Wetness	Slight
1426A:		
Karnak	Unsuited Wetness	Slight
3071A, 3071L:		
Darwin	Unsuited Wetness	Slight
3092BL:		
Sarpy	Well suited	Severe Excessively drained Too sandy
3162L:		
Gorham	Unsuited Wetness	Slight
3180A:		
Dupo	Well suited	Moderate Root restriction
3288A:		
Petrolia	Unsuited Wetness	Slight
3331A:		
Haymond	Well suited	Slight
3333A:		
Wakeland	Well suited	Slight
3334A:		
Birds	Unsuited Wetness	Slight
3426A:		
Karnak	Unsuited Wetness	Slight
3456B:		
Ware	Well suited	Slight
3590L:		
Cairo	Unsuited Wetness	Moderate Root restriction
3682BL:		
Medway	Well suited	Slight
5079B2, 5079C3, 5079D3:		
Menfro	Well suited	Slight
5079E3:		
Menfro	Poorly suited Slope	Slight

Table 8.—Forestland Managment, Part II—Continued

Map symbol and soil name	Suitability for mechanized site preparation	Limitations affecting prescribed burning
	Rating class and limiting features	Rating class and limiting features
5214B2, 5214C3, 5214D3:		
Hosmer	Well suited	Moderate Root restriction
8071A:		
Darwin	Unsuited Wetness	Slight
8085A:		
Jacob	Unsuited Wetness	Slight
8092B:		
Sarpy	Well suited	Severe Excessively drained Too sandy
8162A:		
Gorham	Unsuited Wetness	Slight
8180A:		
Dupo	Well suited	Moderate Root restriction
8284A:		
Tice	Well suited	Slight
8331A:		
Haymond	Well suited	Slight
8333A:		
Wakeland	Well suited	Slight
8334A:		
Birds	Unsuited Wetness	Slight
8420A:		
Piopolis	Unsuited Wetness	Slight
8422A:		
Cape	Unsuited Wetness	Slight
8426A:		
Karnak	Unsuited Wetness	Slight
8427B:		
Burnside	Well suited	Slight
8456B:		
Ware	Well suited	Slight
8475B:		
Elsah	Well suited	Slight

Table 8.—Forestland Managment, Part II—Continued

Map symbol and soil name	Suitability for mechanized site preparation	Limitations affecting prescribed burning
	Rating class and limiting features	Rating class and limiting features
8589B:		
Bowdre	Well suited	Moderate Root restriction
8590A:		
Cairo	Unsuited Wetness	Moderate Root restriction
8682B:		
Medway	Well suited	Slight
8787A:		
Banlic	Well suited	Moderate Root restriction
MW:		
Miscellaneous water	Not rated	Not rated
W:		
Water	Not rated	Not rated

Table 8.—Forestland Managment, Part III

Map symbol and soil name	Erosion hazard on roads and trails Rating and limiting features	Suitability for roads (natural surface) Rating and limiting features
75B:		
Drury	Moderate Slope/erodibility	Moderately suited Low strength
75C, 75C3:		
Drury	Moderate Slope/erodibility	Moderately suited Low strength Slope
75D:		
Drury	Severe Slope/erodibility	Poorly suited Slope Low strength
79B:		
Menfro	Moderate Slope/erodibility	Moderately suited Low strength
79C2, 79C3:		
Menfro	Moderate Slope/erodibility	Moderately suited Low strength Slope
79D2, 79D3, 79E, 79E2, 79E3, 79F:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
99G:		
Sandstone and limestone rock land	Not rated	Not rated
164A:		
Stoy	Slight	Moderately suited Low strength Wetness
164B:		
Stoy	Moderate Slope/erodibility	Moderately suited Low strength Wetness
214B:		
Hosmer	Moderate Slope/erodibility	Moderately suited Low strength
214C2, 214C3:		
Hosmer	Moderate Slope/erodibility	Moderately suited Low strength Slope
214D2, 214D3:		
Hosmer	Severe Slope/erodibility	Poorly suited Slope Low strength

Table 8.—Forestland Managment, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails	Suitability for roads (natural surface)
	Rating and limiting features	Rating and limiting features
477B:		
Winfield	Moderate Slope/erodibility	Moderately suited Low strength
477C2, 477C3, 477D2:		
Winfield	Moderate Slope/erodibility	Moderately suited Low strength Slope
477D3:		
Winfield	Severe Slope/erodibility	Poorly suited Slope Low strength
692D, 692D2, 692F:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
694D, 694D2, 694F:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
Baxter	Severe Slope/erodibility	Poorly suited Slope Low strength
801B:		
Orthents	Moderate Slope/erodibility	Moderately suited Low strength Wetness
802D:		
Orthents	Severe Slope/erodibility	Moderately suited Slope Low strength
832F:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
Clarksville	Severe Slope/erodibility	Poorly suited Slope
832G:		
Clarksville	Severe Slope/erodibility	Poorly suited Slope
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength

Table 8.—Forestland Managment, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails Rating and limiting features	Suitability for roads (natural surface) Rating and limiting features
833F:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
Goss	Severe Slope/erodibility	Poorly suited Slope Low strength
833G:		
Goss	Severe Slope/erodibility	Poorly suited Slope Low strength
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
834F, 834G:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
Westmore	Severe Slope/erodibility	Poorly suited Slope Low strength
864:		
Pits	Not rated	Not rated
940D, 940D2:		
Zanesville	Severe Slope/erodibility	Poorly suited Slope Low strength
Westmore	Severe Slope/erodibility	Poorly suited Slope Low strength
977F, 977G:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
Neotoma	Severe Slope/erodibility	Poorly suited Slope
1334A:		
Birds	Slight	Poorly suited Ponding Flooding Low strength Wetness

Table 8.—Forestland Managment, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails	Suitability for roads (natural surface)
	Rating and limiting features	Rating and limiting features
1426A:		
Karnak	Slight	Poorly suited Ponding Flooding Low strength Wetness Stickiness; high plasticity index
3071A, 3071L:		
Darwin	Slight	Poorly suited Ponding Flooding Low strength Wetness Stickiness; high plasticity index
3092BL:		
Sarpy	Moderate Slope/erodibility	Poorly suited Flooding
3162L:		
Gorham	Slight	Poorly suited Ponding Flooding Low strength Wetness
3180A:		
Dupo	Slight	Poorly suited Flooding Wetness Low strength
3288A:		
Petrolia	Slight	Poorly suited Ponding Flooding Low strength Wetness
3331A:		
Haymond	Slight	Poorly suited Flooding Low strength
3333A:		
Wakeland	Slight	Poorly suited Flooding Low strength Wetness
3334A:		
Birds	Slight	Poorly suited Ponding Flooding Low strength Wetness

Table 8.—Forestland Managment, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails	Suitability for roads (natural surface)
	Rating and limiting features	Rating and limiting features
3426A:		
Karnak	Slight	Poorly suited Ponding Flooding Low strength Wetness Stickiness; high plasticity index
3456B:		
Ware	Moderate Slope/erodibility	Poorly suited Flooding
3590L:		
Cairo	Slight	Poorly suited Ponding Flooding Stickiness; high plasticity index Low strength Wetness
3682BL:		
Medway	Moderate Slope/erodibility	Poorly suited Flooding Low strength
5079B2:		
Menfro	Moderate Slope/erodibility	Moderately suited Low strength
5079C3:		
Menfro	Moderate Slope/erodibility	Moderately suited Low strength Slope
5079D3, 5079E3:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
5214B2:		
Hosmer	Moderate Slope/erodibility	Moderately suited Low strength
5214C3:		
Hosmer	Moderate Slope/erodibility	Moderately suited Low strength Slope
5214D3:		
Hosmer	Severe Slope/erodibility	Poorly suited Slope Low strength

Table 8.—Forestland Managment, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails	Suitability for roads (natural surface)
	Rating and limiting features	Rating and limiting features
8071A:		
Darwin	Slight	Poorly suited Ponding Flooding Low strength Wetness Stickiness; high plasticity index
8085A:		
Jacob	Slight	Poorly suited Ponding Flooding Stickiness; high plasticity index Low strength Wetness
8092B:		
Sarpy	Moderate Slope/erodibility	Poorly suited Flooding
8162A:		
Gorham	Slight	Poorly suited Ponding Flooding Low strength Wetness
8180A:		
Dupo	Slight	Poorly suited Flooding Wetness Low strength
8284A:		
Tice	Slight	Poorly suited Flooding Low strength Wetness
8331A:		
Haymond	Slight	Poorly suited Flooding Low strength
8333A:		
Wakeland	Slight	Poorly suited Flooding Low strength Wetness
8334A:		
Birds	Slight	Poorly suited Ponding Flooding Low strength Wetness

Table 8.—Forestland Managment, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails Rating and limiting features	Suitability for roads (natural surface) Rating and limiting features
8420A:		
Piopolis	Slight	Poorly suited Ponding Flooding Low strength Wetness
8422A:		
Cape	Slight	Poorly suited Ponding Flooding Wetness Low strength
8426A:		
Karnak	Slight	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index
8427B:		
Burnside	Moderate Slope/erodibility	Poorly suited Flooding Low strength
8456B:		
Ware	Moderate Slope/erodibility	Poorly suited Flooding
8475B:		
Elsah	Moderate Slope/erodibility	Poorly suited Flooding Low strength
8589B:		
Bowdre	Moderate Slope/erodibility	Poorly suited Flooding Low strength Wetness Stickiness; high plasticity index
8590A:		
Cairo	Slight	Poorly suited Ponding Flooding Stickiness; high plasticity index Low strength Wetness
8682B:		
Medway	Moderate Slope/erodibility	Poorly suited Flooding Low strength

Table 8.—Forestland Managment, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails	Suitability for roads (natural surface)
	Rating and limiting features	Rating and limiting features
8787A:		
Banlic	Slight	Poorly suited Flooding Wetness Low strength
MW:		
Miscellaneous water	Not rated	Not rated
W:		
Water	Not rated	Not rated

Table 9.—Forest Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index
75B:		
Drury	white oak	72
	northern red oak	79
	eastern cottonwood	104
	pin oak	94
75C:		
Drury	white oak	69
	northern red oak	76
	eastern cottonwood	100
	pin oak	90
75C3:		
Drury	white oak	61
	northern red oak	66
	eastern cottonwood	87
	pin oak	79
75D:		
Drury	white oak	65
	northern red oak	71
	eastern cottonwood	94
	pin oak	85
79B:		
Menfro	white oak	82
	northern red oak	84
79C2:		
Menfro	white oak	75
	northern red oak	77
79C3:		
Menfro	white oak	69
	northern red oak	71
79D2:		
Menfro	white oak	70
	northern red oak	71
79D3:		
Menfro	white oak	62
	northern red oak	64
79E:		
Menfro	white oak	66
	northern red oak	68
79E2:		
Menfro	white oak	61
	northern red oak	62
79E3:		
Menfro	white oak	55
	northern red oak	56
79F:		
Menfro	white oak	53
	northern red oak	54

Table 9.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity	
	Common trees	Site index
99G. Sandstone and limestone rock land		
164A:		
Stoy	eastern cottonwood	110
	northern red oak	71
	white ash	69
	white oak	70
	yellow-poplar	90
164B:		
Stoy	white ash	68
	white oak	69
	northern red oak	70
	eastern cottonwood	94
	yellow-poplar	89
214B:		
Hosmer	white oak	72
	northern red oak	75
	eastern cottonwood	99
	pin oak	89
214C2:		
Hosmer	white oak	64
	northern red oak	67
214C3:		
Hosmer	eastern cottonwood	73
	northern red oak	55
	white ash	50
	white oak	53
	yellow-poplar	67
214D2:		
Hosmer	white oak	58
	northern red oak	61
214D3:		
Hosmer	white oak	48
	northern red oak	49
477B:		
Winfield	white oak	76
	northern red oak	79
477C2:		
Winfield	white oak	71
	northern red oak	74
477C3:		
Winfield	white oak	65
	northern red oak	67
477D2:		
Winfield	white oak	66
	northern red oak	68

Table 9.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index
477D3:		
Winfield	white oak	59
	northern red oak	61
692D:		
Menfro	white oak	75
	northern red oak	77
Wellston	white oak	62
	northern red oak	63
692D2:		
Menfro	white oak	70
	northern red oak	71
Wellston	white oak	56
	northern red oak	58
692F:		
Menfro	white oak	53
	northern red oak	54
Wellston	white oak	43
	northern red oak	45
694D:		
Menfro	white oak	75
	northern red oak	77
Baxter	white oak	66
	northern red oak	71
694D2:		
Menfro	white oak	70
	northern red oak	71
Baxter	white oak	65
	northern red oak	70
694F:		
Menfro	white oak	53
	northern red oak	54
Baxter	white oak	59
	northern red oak	64
801B, 802D. Orthents		
832F:		
Menfro	white oak	53
	northern red oak	54
Clarksville	white oak	30
	northern red oak	35
	eastern cottonwood	---
	pin oak	---

Table 9.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity	
	Common trees	Site index
832G:		
Clarksville	white oak	30
	northern red oak	35
Menfro	white oak	39
	northern red oak	40
833F:		
Menfro	white oak	53
	northern red oak	54
Goss	white oak	42
	northern red oak	51
833G:		
Goss	white oak	31
	northern red oak	38
Menfro	white oak	39
	northern red oak	40
834F:		
Wellston	white oak	43
	northern red oak	45
Westmore	white oak	56
	northern red oak	55
834G:		
Wellston	white oak	34
	northern red oak	35
Westmore	white oak	37
	northern red oak	36
864.		
Pits		
940D:		
Zanesville	white oak	65
	northern red oak	64
Westmore	white oak	71
	northern red oak	70
940D2:		
Zanesville	white oak	58
	northern red oak	57
Westmore	white oak	69
	northern red oak	68
977F:		
Wellston	white oak	43
	northern red oak	45
Neotoma	white oak	47
	northern red oak	45

Table 9.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index
977G:		
Wellston	white oak	34
	northern red oak	35
Neotoma	white oak	35
	northern red oak	33
1334A:		
Birds	eastern cottonwood	102
	pin oak	92
1426A:		
Karnak	eastern cottonwood	86
	pin oak	78
3071A, 3071L:		
Darwin	eastern cottonwood	88
	pin oak	80
3092BL:		
Sarpy	eastern cottonwood	94
	pin oak	85
3162L:		
Gorham	eastern cottonwood	97
	pin oak	88
3180A:		
Dupo	eastern cottonwood	102
	pin oak	92
3288A:		
Petrolia	white oak	---
	northern red oak	---
	eastern cottonwood	97
	pin oak	87
3331A:		
Haymond	eastern cottonwood	110
	pin oak	99
3333A:		
Wakeland	eastern cottonwood	99
	pin oak	90
3334A:		
Birds	eastern cottonwood	99
	pin oak	90
3426A:		
Karnak	eastern cottonwood	84
	pin oak	76
3456B:		
Ware	eastern cottonwood	103
	pin oak	93
3590L:		
Cairo	eastern cottonwood	97
	pin oak	87

Table 9.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index
3682BL:		
Medway	eastern cottonwood	100
	pin oak	90
5079B2:		
Menfro	white oak	78
	northern red oak	80
5079C3:		
Menfro	white oak	69
	northern red oak	71
5079D3:		
Menfro	white oak	62
	northern red oak	64
5079E3:		
Menfro	white oak	55
	northern red oak	56
5214B2:		
Hosmer	white oak	66
	northern red oak	69
5214C3:		
Hosmer	white oak	56
	northern red oak	58
5214D3:		
Hosmer	white oak	48
	northern red oak	49
8071A:		
Darwin	eastern cottonwood	88
	pin oak	80
8085A:		
Jacob	eastern cottonwood	85
	pin oak	77
8092B:		
Sarpy	eastern cottonwood	92
	pin oak	83
8162A:		
Gorham	eastern cottonwood	97
	pin oak	88
8180A:		
Dupo	eastern cottonwood	102
	pin oak	92
8284A:		
Tice	eastern cottonwood	97
	pin oak	87
8331A:		
Haymond	eastern cottonwood	110
	pin oak	99

Table 9.—Forest Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index
8333A:		
Wakeland	eastern cottonwood	99
	pin oak	90
8334A:		
Birds	eastern cottonwood	102
	pin oak	92
8420A:		
Piopolis	eastern cottonwood	95
	pin oak	86
8422A:		
Cape	eastern cottonwood	91
	pin oak	83
8426A:		
Karnak	eastern cottonwood	84
	pin oak	76
8427B:		
Burnside	eastern cottonwood	114
	pin oak	102
8456B:		
Ware	eastern cottonwood	102
	pin oak	92
8475B:		
Elsah	eastern cottonwood	97
	pin oak	87
8589B:		
Bowdre	eastern cottonwood	105
	pin oak	94
8590A:		
Cairo	eastern cottonwood	97
	pin oak	87
8682B:		
Medway	eastern cottonwood	101
	pin oak	91
8787A:		
Banlic	eastern cottonwood	93
	pin oak	84
MW.		
Miscellaneous water		
W.		
Water		

Table 10.—Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
75B, 75C, 75C3, 75D:					
Drury	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
79B, 79C2, 79C3, 79D2, 79D3, 79E, 79E2, 79E3, 79F:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
99G. Sandstone and limestone rock land					
164A, 164B:					
Stoy	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
214B, 214C2, 214C3, 214D2, 214D3:					
Hosmer	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
477B, 477C2, 477C3, 477D2, 477D3:					
Winfield	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
692D, 692D2, 692F:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
694D, 694D2, 694F:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Baxter	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
801B, 802D:					
Orthents	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
832F:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Clarksville	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
832G:					
Clarksville	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
833F:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Goss	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
833G:					
Goss	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
833G:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
834F, 834G:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Westmore	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
864.					
Pits					
940D, 940D2:					
Zanesville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
940D, 940D2:					
Westmore	American cranberrybush, American hazelnut, black chokeberry, common chokecherry, common elderberry, common juniper, coralberry, mapleleaf viburnum, silky dogwood	American plum, bur oak, chinkapin oak, common serviceberry, eastern redcedar, nannyberry, prairie crabapple, roughleaf dogwood, smooth sumac	black oak, common hackberry, eastern white pine, green ash	Carolina poplar	---
977F, 977G:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Neotoma	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
1334A:					
Birds	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
1426A:					
Karnak	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3071A, 3071L:					
Darwin	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3092BL:					
Sarpy	American cranberrybush, American hazelnut, black chokeberry, common chokecherry, common elderberry, common juniper, coralberry, mapleleaf viburnum, silky dogwood	American plum, bur oak, chinkapin oak, common serviceberry, eastern redcedar, nannyberry, prairie crabapple, roughleaf dogwood, smooth sumac	black oak, common hackberry, eastern white pine, green ash	Carolina poplar	---

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3162L:					
Gorham	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3180A:					
Dupo	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3288A:					
Petrolia	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
3331A: Haymond	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
3333A: Wakeland	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3334A: Birds	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3426A:					
Karnak	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3456B:					
Ware	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, green ash, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
3590L:					
Cairo	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3682BL:					
Medway	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
5079B2, 5079C3, 5079D3, 5079E3:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
5214B2, 5214C3, 5214D3:					
Hosmer	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
8071A:					
Darwin	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8085A:					
Jacob	black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
8092B:					
Sarpy	American cranberrybush, American hazelnut, black chokeberry, common chokecherry, common elderberry, common juniper, coralberry, mapleleaf viburnum, silky dogwood	American plum, bur oak, chinkapin oak, common serviceberry, eastern redcedar, nannyberry, prairie crabapple, roughleaf dogwood, smooth sumac	black oak, common hackberry, eastern white pine, green ash	Carolina poplar	---
8162A:					
Gorham	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8180A:					
Dupo	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8284A:					
Tice	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
8331A:					
Haymond	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
8333A:					
Wakeland	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8334A:					
Birds	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
8420A:					
Piopolis	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8422A:					
Cape	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8426A:					
Karnak	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
8427B: Burnside	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
8456B: Ware	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, green ash, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
8475B: Elsah	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
8589B: Bowdre	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
8590A:					
Cairo	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8682B:					
Medway	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
8787A:					
Banlic	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
MW.					
Miscellaneous water					
W.					
Water					

Table 11.—Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75B:						
Drury	Not limited		Not limited		Somewhat limited	
					Slope	0.50
75C, 75C3:						
Drury	Not limited		Not limited		Very limited	
					Slope	1.00
75D:						
Drury	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
79B:						
Menfro	Not limited		Not limited		Somewhat limited	
					Slope	0.50
79C2, 79C3:						
Menfro	Not limited		Not limited		Very limited	
					Slope	1.00
79D2, 79D3:						
Menfro	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
79E, 79E2, 79E3, 79F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
99G:						
Sandstone and limestone rock land	Not rated		Not rated		Not rated	
164A:						
Stoy	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.99	Restricted permeability	0.96	Depth to saturated zone	0.99
	Restricted permeability	0.96	Depth to saturated zone	0.78	Restricted permeability	0.96
164B:						
Stoy	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.99	Restricted permeability	0.96	Depth to saturated zone	0.99
	Restricted permeability	0.96	Depth to saturated zone	0.78	Restricted permeability	0.96
					Slope	0.50
214B:						
Hosmer	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to cemented pan	0.65	Depth to cemented pan	0.65	Depth to cemented pan	0.64
	Depth to saturated zone	0.07	Depth to saturated zone	0.03	Slope	0.50
					Depth to saturated zone	0.07

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
214C2:						
Hosmer	Somewhat limited		Somewhat limited		Very limited	
	Depth to cemented pan	0.86	Depth to cemented pan	0.86	Slope	1.00
	Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to cemented pan	0.86
					Depth to saturated zone	0.07
214C3:						
Hosmer	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to cemented pan	0.86	Depth to cemented pan	0.86	Slope	1.00
	Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to cemented pan	0.86
					Depth to saturated zone	0.07
214D2:						
Hosmer	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Depth to cemented pan	0.86	Depth to cemented pan	0.86	Depth to cemented pan	0.86
	Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to saturated zone	0.07
214D3:						
Hosmer	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Depth to cemented pan	0.95	Depth to cemented pan	0.95	Depth to cemented pan	0.95
	Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to saturated zone	0.07
477B:						
Winfield	Not limited		Not limited		Somewhat limited	
					Slope	0.50
477C2, 477C3, 477D2:						
Winfield	Not limited		Not limited		Very limited	
					Slope	1.00
477D3:						
Winfield	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
692D, 692D2:						
Menfro	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
Wellston	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
692F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
694D, 694D2:						
Menfro	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
Baxter	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Gravel content	0.11	Gravel content	0.11	Gravel content	1.00
					Content of large stones	0.01
694F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Baxter	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.11	Gravel content	0.11	Gravel content	1.00
					Content of large stones	0.01
801B:						
Orthents	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	0.12
802D:						
Orthents	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
832F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Clarksville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.99
					Content of large stones	0.20
832G:						
Clarksville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.99
					Content of large stones	0.20
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
833F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Goss	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
					Content of large stones	0.01

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
833G:						
Goss	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
					Content of large stones	0.01
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
834F, 834G:						
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Westmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
864:						
Pits	Not rated		Not rated		Not rated	
940D:						
Zanesville	Somewhat limited		Somewhat limited		Very limited	
	Depth to cemented pan	0.97	Depth to cemented pan	0.97	Slope	1.00
	Slope	0.96	Slope	0.96	Depth to cemented pan	0.97
Westmore	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
940D2:						
Zanesville	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	1.00
	Slope	0.96	Slope	0.96	Depth to cemented pan	1.00
Westmore	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
977F, 977G:						
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
977F, 977G:						
Neotoma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.08	Gravel content	0.08	Gravel content	1.00
					Content of large stones	0.68

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
1334A:						
Birds	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
1426A:						
Karnak	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Too clayey	1.00	Ponding	1.00
	Too clayey	1.00	Restricted permeability	0.99	Too clayey	1.00
	Restricted permeability	0.99	Flooding	0.40	Restricted permeability	0.99
3071A, 3071L:						
Darwin	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Restricted permeability	1.00	Ponding	1.00
	Restricted permeability	1.00	Too clayey	1.00	Restricted permeability	1.00
	Too clayey	1.00	Flooding	0.40	Too clayey	1.00
3092BL:						
Sarpy	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Too sandy	0.76	Flooding	1.00
	Too sandy	0.76	Flooding	0.40	Slope	0.88
					Too sandy	0.76
3162L:						
Gorham	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
3180A:						
Dupo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Restricted permeability	0.96	Flooding	1.00
	Restricted permeability	0.96	Flooding	0.40	Restricted permeability	0.96
3288A:						
Petrolia	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
3331A:						
Haymond	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
3333A:						
Wakeland	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.40	Flooding	1.00
3334A:						
Birds	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
3426A:						
Karnak	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Too clayey	1.00	Ponding	1.00
	Too clayey	1.00	Restricted permeability	0.99	Too clayey	1.00
	Restricted permeability	0.99	Flooding	0.40	Restricted permeability	0.99
3456B:						
Ware	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
					Slope	0.50
3590L:						
Cairo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Restricted permeability	1.00	Ponding	1.00
	Restricted permeability	1.00	Too clayey	1.00	Restricted permeability	1.00
	Too clayey	1.00	Flooding	0.40	Too clayey	1.00
3682BL:						
Medway	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
					Slope	0.50
5079B2:						
Menfro	Not limited		Not limited		Somewhat limited	
					Slope	0.50
5079C3:						
Menfro	Not limited		Not limited		Very limited	
					Slope	1.00
5079D3:						
Menfro	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
5079E3:						
Menfro	Very limited Slope	 1.00	Very limited Slope	 1.00	Very limited Slope	 1.00
5214B2:						
Hosmer	Somewhat limited Depth to cemented pan Depth to saturated zone	 0.86 0.07	Somewhat limited Depth to cemented pan Depth to saturated zone	 0.86 0.03	Somewhat limited Depth to cemented pan Slope Depth to saturated zone	 0.86 0.50 0.07
5214C3:						
Hosmer	Somewhat limited Depth to cemented pan Depth to saturated zone	 0.95 0.07	Somewhat limited Depth to cemented pan Depth to saturated zone	 0.95 0.03	Very limited Slope Depth to cemented pan Depth to saturated zone	 1.00 0.95 0.07
5214D3:						
Hosmer	Somewhat limited Slope Depth to cemented pan Depth to saturated zone	 0.96 0.95 0.07	Somewhat limited Slope Depth to cemented pan Depth to saturated zone	 0.96 0.95 0.03	Very limited Slope Depth to cemented pan Depth to saturated zone	 1.00 0.95 0.07
8071A:						
Darwin	Very limited Depth to saturated zone Flooding Ponding Restricted permeability Too clayey	 1.00 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Restricted permeability Too clayey	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Restricted permeability Too clayey Flooding	 1.00 1.00 1.00 1.00 0.60
8085A:						
Jacob	Very limited Depth to saturated zone Flooding Ponding Too clayey Restricted permeability	 1.00 1.00 1.00 1.00 1.00	Very limited Too clayey Ponding Depth to saturated zone Restricted permeability	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Ponding Restricted permeability Flooding	 1.00 1.00 1.00 1.00 0.60
8092B:						
Sarpy	Very limited Flooding Too sandy	 1.00 0.76	Somewhat limited Too sandy	 0.76	Somewhat limited Slope Too sandy Flooding	 0.88 0.76 0.60

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
8162A:						
Gorham	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Restricted permeability	0.21	Flooding	0.60
	Restricted permeability	0.21			Restricted permeability	0.21
8180A:						
Dupo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Restricted permeability	0.96	Restricted permeability	0.96
	Restricted permeability	0.96			Flooding	0.60
8284A:						
Tice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00			Flooding	0.60
8331A:						
Haymond	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Flooding	0.60
8333A:						
Wakeland	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00			Flooding	0.60
8334A:						
Birds	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Restricted permeability	0.21	Flooding	0.60
	Restricted permeability	0.21			Restricted permeability	0.21
8420A:						
Piopolis	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Restricted permeability	0.96	Restricted permeability	0.96
	Restricted permeability	0.96			Flooding	0.60
8422A:						
Cape	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Restricted permeability	1.00			Flooding	0.60

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
8426A:						
Karnak	Very limited Depth to saturated zone Flooding Ponding Too clayey Restricted permeability	 1.00 1.00 1.00 1.00 0.99	Very limited Ponding Depth to saturated zone Too clayey Restricted permeability	 1.00 1.00 1.00 0.99	Very limited Depth to saturated zone Ponding Too clayey Restricted permeability Flooding	 1.00 1.00 1.00 0.99 0.60
8427B:						
Burnside	Very limited Flooding	 1.00	Not limited		Somewhat limited Flooding Slope Content of large stones	 0.60 0.12 0.01
8456B:						
Ware	Very limited Flooding	 1.00	Not limited		Somewhat limited Flooding Slope	 0.60 0.50
8475B:						
Elsah	Very limited Flooding	 1.00	Not limited		Somewhat limited Flooding Slope	 0.60 0.12
8589B:						
Bowdre	Very limited Depth to saturated zone Flooding Too clayey Restricted permeability	 1.00 1.00 1.00 0.96	Very limited Depth to saturated zone Too clayey Restricted permeability	 1.00 1.00 0.96	Very limited Depth to saturated zone Too clayey Restricted permeability Flooding Slope	 1.00 1.00 0.96 0.60 0.50
8590A:						
Cairo	Very limited Depth to saturated zone Flooding Ponding Restricted permeability Too clayey	 1.00 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Restricted permeability Too clayey	 1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Restricted permeability Too clayey Flooding	 1.00 1.00 1.00 1.00 0.60
8682B:						
Medway	Very limited Flooding	 1.00	Not limited		Somewhat limited Flooding Slope	 0.60 0.50
8787A:						
Banlic	Very limited Depth to saturated zone Flooding Restricted permeability	 1.00 1.00 0.96	Somewhat limited Restricted permeability Depth to saturated zone	 0.96 0.94	Very limited Depth to saturated zone Restricted permeability Flooding	 1.00 0.96 0.60

Table 11.—Recreation—Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MW:						
Miscellaneous water-	Not rated		Not rated		Not rated	
W:						
Water---------------	Not rated		Not rated		Not rated	

Table 12.—Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
75B: Drury	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
75C, 75C3, 75D: Drury	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
79B: Menfro	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
79C2, 79C3, 79D2, 79D3: Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
79E: Menfro	Good	Good	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
79E2, 79E3, 79F: Menfro	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
99G. Sandstone and limestone rock land										
164A: Stoy	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
164B: Stoy	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
214B, 214C2, 214C3: Hosmer	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
214D2: Hosmer	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
214D3: Hosmer	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
477B: Winfield	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
477C2, 477C3, 477D2, 477D3: Winfield	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 12.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
692D, 692D2:										
Menfro------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Wellston----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
692F:										
Menfro------------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Wellston----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
694D:										
Menfro------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Baxter------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
694D2:										
Menfro------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Baxter------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
694F:										
Menfro------------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Baxter------------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
801B:										
Orthents----------	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
802D:										
Orthents----------	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
832F:										
Menfro------------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Clarksville-------	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
832G:										
Clarksville-------	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Menfro------------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 12.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
833F:										
Menfro	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Goss	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
833G:										
Goss	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Menfro	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
834F, 834G:										
Wellston	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Westmore	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
864.										
Pits										
940D, 940D2:										
Zanesville	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Westmore	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
977F, 977G:										
Wellston	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Neotoma	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
1334A:										
Birds	Fair	Fair	Fair	Fair	Fair	Good	Good	Good	Good	Good.
1426A:										
Karnak	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Poor	Good.
3071A, 3071L:										
Darwin	Poor	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
3092BL:										
Sarpy	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
3162L:										
Gorham	Good	Poor	Poor	Poor	Poor	Good	Good	Good	Good	Good.
3180A:										
Dupo	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3288A:										
Petrolia	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

Table 12.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
3331A:										
Haymond	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
3333A:										
Wakeland	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3334A:										
Birds	Good	Fair	Good	Good	Fair	Good	Good	Good	Good	Good.
3426A:										
Karnak	Very poor.	Poor	Poor	Fair	Very poor.	Good	Good	Poor	Fair	Good.
3456B:										
Ware	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
3590L:										
Cairo	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3682BL:										
Medway	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
5079B2:										
Menfro	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
5079C3:										
Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
5079D3, 5079E3:										
Menfro	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
5214B2, 5214C3:										
Hosmer	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
5214D3:										
Hosmer	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
8071A:										
Darwin	Poor	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
8085A:										
Jacob	Very poor.	Poor	Poor	Fair	Very poor.	Fair	Good	Poor	Fair	Good.
8092B:										
Sarpy	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
8162A:										
Gorham	Good	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
8180A:										
Dupo	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

Table 12.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
8284A:										
Tice	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
8331A:										
Haymond	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
8333A:										
Wakeland	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
8334A:										
Birds	Good	Fair	Good	Good	Fair	Good	Good	Good	Good	Good.
8420A:										
Piopolis	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
8422A:										
Cape	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
8426A:										
Karnak	Very poor.	Poor	Poor	Fair	Very poor.	Good	Good	Poor	Fair	Good.
8427B:										
Burnside	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
8456B:										
Ware	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
8475B:										
Elsah	Fair	Fair	Fair	Good	Fair	Poor	Poor	Fair	Good	Poor.
8589B:										
Bowdre	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Poor.
8590A:										
Cairo	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
8682B:										
Medway	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
8787A:										
Banlic	Fair	Good	Good	Good	Good	Fair	Good	Good	Good	Fair.
MW. Miscellaneous water										
W. Water										

Table 13.—Building Site Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75B:						
Drury	Not limited		Not limited		Not limited	
75C, 75C3:						
Drury	Not limited		Not limited		Very limited	
75D:						
Drury	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
79B:						
Menfro	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
79C2, 79C3:						
Menfro	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
					Shrink-swell	0.50
79D2, 79D3:						
Menfro	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
79E, 79E2, 79E3, 79F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
99G:						
Sandstone and limestone rock land	Not rated		Not rated		Not rated	
164A, 164B:						
Stoy	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.99	Depth to saturated zone	1.00	Depth to saturated zone	0.99
	Shrink-swell	0.50			Shrink-swell	0.50
214B:						
Hosmer	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.07	Shrink-swell	0.50	Depth to saturated zone	0.07
214C2, 214C3:						
Hosmer	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.07	Shrink-swell	0.50	Shrink-swell	0.50
					Depth to saturated zone	0.07

Table 13.—Building Site Development, Part I—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
214D2, 214D3:						
Hosmer	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	0.50	Slope	0.96	Shrink-swell	0.50
	Depth to saturated zone	0.07	Shrink-swell	0.50	Depth to saturated zone	0.07
477B:						
Winfield	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
477C2:						
Winfield	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
			Shrink-swell	0.50	Shrink-swell	0.50
477C3, 477D2:						
Winfield	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
			Shrink-swell	0.50	Shrink-swell	0.50
477D3:						
Winfield	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
	Shrink-swell	0.50	Slope	0.96	Shrink-swell	0.50
			Shrink-swell	0.50		
692D:						
Menfro	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Wellston	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
692D2:						
Menfro	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Wellston	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
			Depth to hard bedrock	0.02		

Table 13.—Building Site Development, Part I—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
692F:						
Menfro-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Wellston-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
694D, 649D2:						
Menfro-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Baxter-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
694F:						
Menfro-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Baxter-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
801B:						
Orthents-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
802D:						
Orthents-----------	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.37	Slope	0.37	Shrink-swell	0.50
832F:						
Menfro-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Clarksville--------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
832G:						
Clarksville--------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Menfro-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 13.—Building Site Development, Part I—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
833F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Goss	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
	Content of large stones	0.03	Content of large stones	0.03	Content of large stones	0.03
833G:						
Goss	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
	Content of large stones	0.03	Content of large stones	0.03	Content of large stones	0.03
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
834F, 834G:						
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Westmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
864:						
Pits	Not rated		Not rated		Not rated	
940D:						
Zanesville	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Depth to saturated zone	1.00	Slope	1.00
			Slope	0.96		
Westmore	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
	Slope	0.96	Slope	0.96	Shrink-swell	1.00
940D2:						
Zanesville	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Depth to saturated zone	1.00	Slope	1.00
			Slope	0.96		
			Depth to hard bedrock	0.02		
Westmore	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
	Slope	0.96	Slope	0.96	Shrink-swell	1.00
			Depth to hard bedrock	0.02		

Table 13.—Building Site Development, Part I—Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
977F:						
Wellston-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Neotoma------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Content of large stones	0.59	Depth to hard bedrock	0.61	Content of large stones	0.59
			Content of large stones	0.59		
977G:						
Wellston-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Neotoma------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Content of large stones	0.36	Depth to hard bedrock	0.61	Content of large stones	0.36
			Content of large stones	0.36		
1334A:						
Birds--------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
1426A:						
Karnak-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3071A, 3071L:						
Darwin-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3092BL:						
Sarpy--------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
					Slope	0.12
3162L:						
Gorham-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50

Table 13.—Building Site Development, Part I—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
3180A:						
Dupo	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Shrink-swell	1.00		
3288A:						
Petrolia	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
3331A:						
Haymond	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.95		
3333A:						
Wakeland	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3334A:						
Birds	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3426A:						
Karnak	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3456B:						
Ware	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
3590L:						
Cairo	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3682BL:						
Medway	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.95		

Table 13.—Building Site Development, Part I—Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5079B2:						
Menfro-------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
5079C3:						
Menfro-------------	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
					Shrink-swell	0.50
5079D3:						
Menfro-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
5079E3:						
Menfro-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
5214B2:						
Hosmer-------------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.07	Shrink-swell	0.50	Depth to saturated zone	0.07
5214C3:						
Hosmer-------------	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.07	Shrink-swell	0.50	Shrink-swell	0.50
					Depth to saturated zone	0.07
5214D3:						
Hosmer-------------	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	0.50	Slope	0.96	Shrink-swell	0.50
	Depth to saturated zone	0.07	Shrink-swell	0.50	Depth to saturated zone	0.07
8071A:						
Darwin-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
8085A:						
Jacob--------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
8092B:						
Sarpy--------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
					Slope	0.12

Table 13.—Building Site Development, Part I—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
8162A:						
Gorham-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
8180A:						
Dupo---------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Shrink-swell	1.00		
8284A:						
Tice---------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
8331A:						
Haymond------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.95		
8333A:						
Wakeland-----------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
8334A:						
Birds--------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
8420A:						
Piopolis-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
8422A:						
Cape---------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	0.50	Shrink-swell	1.00

Table 13.—Building Site Development, Part I—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
8426A:						
Karnak-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
8427B:						
Burnside-----------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to hard bedrock	0.02		
8456B:						
Ware---------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
8475B:						
Elsah--------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
8589B:						
Bowdre-------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
8590A:						
Cairo--------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
8682B:						
Medway-------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.95		
8787A:						
Banlic-------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MW:						
Miscellaneous water	Not rated		Not rated		Not rated	
W:						
Water--------------	Not rated		Not rated		Not rated	

Table 13.—Building Site Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75B, 75C, 75C3:						
Drury	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
75D:						
Drury	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
79B, 79C2, 79C3:						
Menfro	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
79D2, 79D3:						
Menfro	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
	Shrink-swell	0.50				
79E, 79E2, 79E3, 79F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
99G:						
Sandstone and limestone rock land	Not rated		Not rated		Not rated	
164A, 164B:						
Stoy	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.78
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.78				
	Shrink-swell	0.50				
214B:						
Hosmer	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.64
	Low strength	0.78	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Shrink-swell	0.50				
	Depth to saturated zone	0.03				

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
214C2, 214C3:						
Hosmer	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.86
	Low strength	0.78	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Shrink-swell	0.50				
	Depth to saturated zone	0.03				
214D2:						
Hosmer	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.96
	Slope	0.96	Slope	0.96	Depth to cemented pan	0.86
	Low strength	0.78	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Shrink-swell	0.50				
	Depth to saturated zone	0.03				
214D3:						
Hosmer	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.96
	Slope	0.96	Slope	0.96	Depth to cemented pan	0.95
	Low strength	0.78	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Shrink-swell	0.50				
	Depth to saturated zone	0.03				
477B, 477C2, 477C3, 477D2:						
Winfield	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
477D3:						
Winfield	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
	Low strength	1.00	Slope	0.96		
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
692D:						
Menfro	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
	Shrink-swell	0.50				
Wellston	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
692D2:						
Menfro	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.50		
	Shrink-swell	0.50				

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
692D2:						
Wellston	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
			Depth to hard bedrock	0.02		
692F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.50		
	Shrink-swell	0.50				
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		
694D, 694D2:						
Menfro	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
	Shrink-swell	0.50				
Baxter	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.96	Cutbanks cave	1.00	Slope	0.96
	Shrink-swell	0.50	Slope	0.96	Gravel content	0.11
			Too clayey	0.92	Content of large stones	0.00
694F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
Baxter	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	1.00	Gravel content	0.11
			Too clayey	0.92	Content of large stones	0.00
801B:						
Orthents	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
802D:						
Orthents	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Dense layer	0.50	Slope	0.37
	Shrink-swell	0.50	Slope	0.37		
	Frost action	0.50	Cutbanks cave	0.10		
	Slope	0.37				

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
832F:						
Menfro-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
Clarksville------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	1.00	Content of large stones	0.20
	Frost action	0.50	Too clayey	0.01		
832G:						
Clarksville------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	1.00	Content of large stones	0.20
	Frost action	0.50	Too clayey	0.01		
Menfro-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
833F:						
Menfro-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.50		
	Shrink-swell	0.50				
Goss-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	1.00	Droughty	0.49
	Frost action	0.50	Too clayey	0.95	Gravel content	0.04
	Content of large stones	0.03	Content of large stones	0.03	Content of large stones	0.00
833G:						
Goss-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	1.00	Droughty	0.49
	Frost action	0.50	Too clayey	0.95	Gravel content	0.04
	Content of large stones	0.03	Content of large stones	0.03	Content of large stones	0.00
Menfro-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.50		
	Shrink-swell	0.50				
834F, 834G:						
Wellston---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
834F, 834G:						
Westmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	1.00		
	Shrink-swell	1.00				
	Low strength	1.00				
864:						
Pits	Not rated		Not rated		Not rated	
940D:						
Zanesville	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.96	Depth to saturated zone	1.00	Depth to cemented pan	0.97
			Slope	0.96	Slope	0.96
			Cutbanks cave	0.10		
			Too clayey	0.01		
Westmore	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Slope	0.96
	Shrink-swell	1.00	Slope	0.96		
	Low strength	1.00				
	Slope	0.96				
940D2:						
Zanesville	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Depth to saturated zone	1.00	Depth to cemented pan	1.00
			Slope	0.96	Slope	0.96
			Cutbanks cave	0.10	Droughty	0.01
			Depth to hard bedrock	0.02		
			Too clayey	0.01		
Westmore	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Slope	0.96
	Shrink-swell	1.00	Slope	0.96		
	Low strength	1.00	Depth to hard bedrock	0.02		
	Slope	0.96				
977F:						
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		
Neotoma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Content of large stones	0.59	Depth to hard bedrock	0.61	Content of large stones	0.68
			Content of large stones	0.59	Gravel content	0.08
			Cutbanks cave	0.10		
977G:						
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
977G:						
Neotoma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Content of large stones	0.36	Depth to hard bedrock	0.61	Content of large stones	0.68
			Content of large stones	0.36	Gravel content	0.08
			Cutbanks cave	0.10		
1334A:						
Birds	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
1426A:						
Karnak	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Too clayey	0.95	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80	Too clayey	1.00
	Shrink-swell	1.00	Cutbanks cave	0.10		
3071A, 3071L:						
Darwin	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Too clayey	0.28	Too clayey	1.00
	Low strength	1.00	Cutbanks cave	0.10		
3092BL:						
Sarpy	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
			Flooding	0.80	Droughty	0.69
3162L:						
Gorham	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
	Shrink-swell	0.50				
3180A:						
Dupo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Too clayey	0.24		
			Cutbanks cave	0.10		

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
3288A:						
Petrolia	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
3331A:						
Haymond	Very limited		Somewhat limited		Very limited	
	Frost action	1.00	Depth to saturated zone	0.95	Flooding	1.00
	Flooding	1.00	Flooding	0.80		
			Cutbanks cave	0.10		
3333A:						
Wakeland	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
3334A:						
Birds	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
3426A:						
Karnak	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Too clayey	0.95	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80	Too clayey	1.00
	Shrink-swell	1.00	Cutbanks cave	0.10		
3456B:						
Ware	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.80	Flooding	1.00
	Frost action	0.50	Cutbanks cave	0.10		
3590L:						
Cairo	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Shrink-swell	1.00	Too clayey	0.32	Too clayey	1.00
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.05

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
3682BL:						
Medway-----------	Very limited		Somewhat limited		Very limited	
	Frost action	1.00	Depth to saturated zone	0.95	Flooding	1.00
	Flooding	1.00	Flooding	0.80		
	Low strength	1.00	Cutbanks cave	0.10		
5079B2, 5079C3:						
Menfro-----------	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
5079D3:						
Menfro-----------	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
	Shrink-swell	0.50				
5079E3:						
Menfro-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
5214B2:						
Hosmer-----------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.86
	Low strength	0.78	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Shrink-swell	0.50				
	Depth to saturated zone	0.03				
5214C3:						
Hosmer-----------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.95
	Low strength	0.78	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Shrink-swell	0.50				
	Depth to saturated zone	0.03				
5214D3:						
Hosmer-----------	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.96
	Slope	0.96	Slope	0.96	Depth to cemented pan	0.95
	Low strength	0.78	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Shrink-swell	0.50				
	Depth to saturated zone	0.03				
8071A:						
Darwin-----------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Flooding	0.60	Too clayey	1.00
	Flooding	1.00	Too clayey	0.28	Flooding	0.60
	Low strength	1.00	Cutbanks cave	0.10		

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
8085A:						
Jacob------------	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Ponding	1.00	Too clayey	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Too clayey	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.60	Flooding	0.60
	Low strength	1.00	Cutbanks cave	0.10		
8092B:						
Sarpy------------	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Cutbanks cave	1.00	Droughty	0.69
			Flooding	0.60	Flooding	0.60
8162A:						
Gorham-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00	Flooding	0.60
	Flooding	1.00	Flooding	0.60		
	Shrink-swell	0.50				
8180A:						
Dupo-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.60	Flooding	0.60
	Flooding	1.00	Too clayey	0.24		
			Cutbanks cave	0.10		
8284A:						
Tice-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.60	Flooding	0.60
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
8331A:						
Haymond----------	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.95	Flooding	0.60
	Flooding	1.00	Flooding	0.60		
			Cutbanks cave	0.10		
8333A:						
Wakeland---------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.60	Flooding	0.60
	Flooding	1.00	Cutbanks cave	0.10		

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8334A:						
Birds------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.60	Flooding	0.60
	Flooding	1.00	Cutbanks cave	0.10		
8420A:						
Piopolis---------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.60	Flooding	0.60
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
8422A:						
Cape-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.60	Flooding	0.60
	Flooding	1.00	Too clayey	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
8426A:						
Karnak-----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Too clayey	0.95	Too clayey	1.00
	Flooding	1.00	Flooding	0.60	Flooding	0.60
	Shrink-swell	1.00	Cutbanks cave	0.10		
8427B:						
Burnside---------	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Flooding	0.60	Flooding	0.60
	Frost action	0.50	Cutbanks cave	0.10	Content of large stones	0.00
			Depth to hard bedrock	0.02		
8456B:						
Ware-------------	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Flooding	0.60	Flooding	0.60
	Frost action	0.50	Cutbanks cave	0.10		
8475B:						
Elsah------------	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
	Frost action	0.50	Flooding	0.60		
8589B:						
Bowdre-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.60	Too clayey	1.00
	Low strength	1.00	Cutbanks cave	0.10	Flooding	0.60
	Shrink-swell	1.00			Droughty	0.43

Table 13.—Building Site Development, Part II—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
8590A:						
Cairo	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.60	Too clayey	1.00
	Shrink-swell	1.00	Too clayey	0.32	Flooding	0.60
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.05
8682B:						
Medway	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.95	Flooding	0.60
	Flooding	1.00	Flooding	0.60		
	Low strength	1.00	Cutbanks cave	0.10		
8787A:						
Banlic	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Flooding	1.00	Flooding	0.60	Flooding	0.60
	Depth to saturated zone	0.94	Cutbanks cave	0.50		
MW:						
Miscellaneous water	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	

Table 14.—Sanitary Facilities, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
75B:				
Drury	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.32
75C, 75C3:				
Drury	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
			Seepage	0.53
75D:				
Drury	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
79B:				
Menfro	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.32
79C2, 79C3:				
Menfro	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
			Seepage	0.53
79D2, 79D3:				
Menfro	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
79E, 79E2, 79E3, 79F:				
Menfro	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
99G:				
Sandstone and limestone rock land	Not rated		Not rated	
164A:				
Stoy	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
164B:				
Stoy	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.32
214B:				
Hosmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	0.46	Depth to saturated zone	0.44
			Slope	0.32
214C2:				
Hosmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
			Depth to saturated zone	0.44
214C3:				
Hosmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
			Seepage	0.53
			Depth to saturated zone	0.44
214D2:				
Hosmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
	Restricted permeability	0.46	Depth to saturated zone	0.44
214D3:				
Hosmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
			Depth to saturated zone	0.44
477B:				
Winfield	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.32

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
477C2, 477C3, 477D2:				
Winfield	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Slope	1.00
			Seepage	0.53
477D3:				
Winfield	Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
692D:				
Menfro	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
Wellston	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.72	Seepage	0.53
	Depth to bedrock	0.27		
692D2:				
Menfro	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
Wellston	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.72	Seepage	0.53
	Depth to bedrock	0.41	Depth to hard bedrock	0.02
			Depth to soft bedrock	0.02
692F:				
Menfro	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
Wellston	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.72	Seepage	0.53
	Depth to bedrock	0.27		
694D, 694D2:				
Menfro	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
694D, 694D2:				
Baxter	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
694F:				
Menfro	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
Baxter	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
801B:				
Orthents	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.72	Seepage	0.28
			Slope	0.08
802D:				
Orthents	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	0.37		
832F:				
Menfro	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
Clarksville	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	1.00
832G:				
Clarksville	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	1.00
Menfro	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
833F:				
Menfro	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
833F:				
Goss	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	1.00
	Content of large stones	0.03	Content of large stones	0.40
833G:				
Goss	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	1.00
	Content of large stones	0.03	Content of large stones	0.40
Menfro	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
834F, 834G:				
Wellston	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.72	Seepage	0.53
	Depth to bedrock	0.27		
Westmore	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.53
	Depth to bedrock	0.17		
864:				
Pits	Not rated		Not rated	
940D:				
Zanesville	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
	Depth to bedrock	0.27	Depth to saturated zone	0.19
Westmore	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
	Depth to bedrock	0.17		

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
940D2:				
Zanesville----------	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
			Seepage	0.53
	Slope	0.96	Depth to saturated zone	0.19
	Depth to bedrock	0.41		
			Depth to hard bedrock	0.02
Westmore-----------	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Depth to bedrock	0.41	Seepage	0.53
			Depth to hard bedrock	0.02
			Depth to soft bedrock	0.02
977F:				
Wellston-----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.72	Seepage	0.53
	Depth to bedrock	0.27		
Neotoma------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Depth to bedrock	0.86	Depth to hard bedrock	0.61
	Content of large stones	0.59		
			Content of large stones	0.22
977G:				
Wellston-----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.72	Seepage	0.53
	Depth to bedrock	0.27		
Neotoma------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Depth to bedrock	0.86	Depth to hard bedrock	0.61
	Content of large stones	0.36		
			Content of large stones	0.28
1334A:				
Birds--------------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1426A:				
Karnak---------------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
3071A, 3071L:				
Darwin---------------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
3092BL:				
Sarpy----------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	0.68
3162L:				
Gorham---------------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
3180A:				
Dupo-----------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
3288A:				
Petrolia-------------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
3331A:				
Harmond--------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
3333A:				
Wakeland	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
3334A:				
Birds	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
3426A:				
Karnak	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
3456B:				
Ware	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Seepage	1.00	Seepage	1.00
			Slope	0.32
3590L:				
Cairo	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
			Seepage	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
	Filtering capacity	1.00		
3682BL:				
Medway	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.32
5079B2:				
Menfro	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.32
5079C3:				
Menfro	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
			Seepage	0.53

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
5079D3:				
Menfro	Somewhat limited		Very limited	
	Slope	0.96	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
5079E3:				
Menfro	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
5214B2:				
Hosmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	0.46	Depth to saturated zone	0.44
			Slope	0.32
5214C3:				
Hosmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
			Seepage	0.53
			Depth to saturated zone	0.44
5214D3:				
Hosmer	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
			Depth to saturated zone	0.44
8071A:				
Darwin	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
8085A:				
Jacob	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
8092B:				
Sarpy	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Filtering capacity	1.00	Seepage	1.00
	Seepage	1.00	Slope	0.68
8162A:				
Gorham	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
8180A:				
Dupo	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
8284A:				
Tice	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
8331A:				
Haymond	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
8333A:				
Wakeland	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
8334A:				
Birds	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
8420A:				
Piopolis	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
8422A:				
Cape	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
8426A:				
Karnak	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
8427B:				
Burnside	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Restricted permeability	0.80	Seepage	0.53
	Depth to bedrock	0.41	Slope	0.08
			Depth to hard bedrock	0.02
8456B:				
Ware	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Seepage	1.00	Seepage	1.00
			Slope	0.32
8475B:				
Elsah	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.08
8589B:				
Bowdre	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Seepage	0.53
			Slope	0.32

Table 14.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
8590A:				
Cairo	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00
	Ponding	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00		
8682B:				
Medway	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.32
8787A:				
Banlic	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MW:				
Miscellaneous water	Not rated		Not rated	
W:				
Water	Not rated		Not rated	

Table 14.—Sanitary Facilities, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75B, 75C, 75C3:						
Drury	Not limited		Not limited		Not limited	
75D:						
Drury	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
79B, 79C2, 79C3:						
Menfro	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50
79D2, 79D3:						
Menfro	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
79E, 79E2, 79E3, 79F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
99G:						
Sandstone and limestone rock land	Not rated		Not rated		Not rated	
164A, 164B:						
Stoy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Too clayey	0.50
214B, 214C2, 214C3:						
Hosmer	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.95	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Too clayey	0.50	Depth to saturated zone	0.44	Depth to saturated zone	0.68
					Too clayey	0.50
214D2, 214D3:						
Hosmer	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	0.95	Slope	0.96	Slope	0.96
	Too clayey	0.50	Depth to saturated zone	0.44	Depth to saturated zone	0.68
					Too clayey	0.50
477B, 477C2, 477C3, 477D2:						
Winfield	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.24

Table 14.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
477D3:						
Winfield	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.96
	Slope	0.96	Slope	0.96	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.24
692D:						
Menfro	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
Wellston	Very limited		Somewhat limited		Somewhat limited	
	Depth to bedrock	1.00	Slope	0.96	Slope	0.96
	Slope	0.96				
692D2:						
Menfro	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
Wellston	Very limited		Somewhat limited		Somewhat limited	
	Depth to bedrock	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Depth to bedrock	0.02	Depth to bedrock	0.02
692F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00				
694D:						
Menfro	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
Baxter	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Slope	0.96	Too clayey	1.00
	Slope	0.96			Hard to compact	1.00
					Slope	0.96
					Gravel content	0.29
694D2:						
Menfro	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
Baxter	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Slope	0.96	Too clayey	1.00
	Slope	0.96			Hard to compact	1.00
					Slope	0.96
					Gravel content	0.31

Table 14.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
694F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
Baxter	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	1.00			Too clayey	1.00
					Hard to compact	1.00
					Gravel content	0.29
801B:						
Orthents	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
802D:						
Orthents	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37	Slope	0.37
832F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
Clarksville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
					Gravel content	0.96
832G:						
Clarksville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
					Gravel content	0.96
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
833F:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
Goss	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	Content of large stones	0.03			Gravel content	0.56
					Content of large stones	0.03
833G:						
Goss	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	Content of large stones	0.03			Gravel content	0.56
					Content of large stones	0.03

Table 14.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
833G:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
834F, 834G:						
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00				
Westmore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00			Hard to compact	1.00
	Too clayey	0.50			Too clayey	0.50
864:						
Pits	Not rated		Not rated		Not rated	
940D:						
Zanesville	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slope	0.96	Slope	0.96	Slope	0.96
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
Westmore	Very limited		Somewhat limited		Very limited	
	Depth to bedrock	1.00	Slope	0.96	Hard to compact	1.00
	Slope	0.96			Slope	0.96
	Too clayey	0.50			Too clayey	0.50
940D2:						
Zanesville	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slope	0.96	Slope	0.96	Slope	0.96
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
			Depth to bedrock	0.02	Depth to bedrock	0.02
Westmore	Very limited		Somewhat limited		Very limited	
	Depth to bedrock	1.00	Slope	0.96	Hard to compact	1.00
	Slope	0.96	Depth to bedrock	0.02	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
					Depth to bedrock	0.02
977F:						
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00				
Neotoma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Seepage	1.00	Content of large stones	0.85
	Seepage	1.00	Depth to bedrock	0.61	Depth to bedrock	0.61
	Content of large stones	0.85			Seepage	0.52

Table 14.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
977G:						
Wellston	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00				
Neotoma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Seepage	1.00	Content of large stones	0.72
	Seepage	1.00	Depth to bedrock	0.61	Depth to bedrock	0.61
	Content of large stones	0.72			Seepage	0.52
1334A:						
Birds	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00		
1426A:						
Karnak	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
3071A, 3071L:						
Darwin	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
3092BL:						
Sarpy	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00				
3162L:						
Gorham	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
	Too sandy	1.00			Too clayey	0.50
3180A:						
Dupo	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00

Table 14.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
3288A:						
Petrolia	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
3331A:						
Haymond	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.11
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
3333A:						
Wakeland	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
3334A:						
Birds	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00		
3426A:						
Karnak	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
3456B:						
Ware	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Seepage	1.00
	Seepage	1.00	Seepage	1.00		
3590L:						
Cairo	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Seepage	1.00	Seepage	1.00	Hard to compact	1.00
	Too clayey	1.00				
3682BL:						
Medway	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Seepage	0.22
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.11
	Seepage	1.00	Seepage	1.00		
5079B2, 5079C3:						
Menfro	Somewhat limited		Not limited		Somewhat limited	
	Too clayey	0.50			Too clayey	0.50

Table 14.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5079D3:						
Menfro	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
	Too clayey	0.50			Too clayey	0.50
5079E3:						
Menfro	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
5214B2, 5214C3:						
Hosmer	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.95	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Too clayey	0.50	Depth to saturated zone	0.44	Depth to saturated zone	0.68
					Too clayey	0.50
5214D3:						
Hosmer	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	0.95	Slope	0.96	Slope	0.96
	Too clayey	0.50	Depth to saturated zone	0.44	Depth to saturated zone	0.68
					Too clayey	0.50
8071A:						
Darwin	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
8085A:						
Jacob	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
8092B:						
Sarpy	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00				
8162A:						
Gorham	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
	Too sandy	1.00			Too clayey	0.50

Table 14.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8180A:						
Dupo	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
8284A:						
Tice	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
8331A:						
Haymond	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.11
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
8333A:						
Wakeland	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
8334A:						
Birds	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00		
8420A:						
Piopolis	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
8422A:						
Cape	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	0.50			Hard to compact	1.00
8426A:						
Karnak	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00

Table 14.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8427B:						
Burnside	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Content of large stones	0.04
	Depth to bedrock	1.00	Depth to bedrock	0.02	Depth to bedrock	0.02
	Content of large stones	0.04				
8456B:						
Ware	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Seepage	1.00
	Seepage	1.00	Seepage	1.00		
8475B:						
Elsah	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Seepage	1.00
	Seepage	1.00	Seepage	1.00	Content of large stones	0.12
	Content of large stones	0.12			Gravel content	0.02
8589B:						
Bowdre	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Too clayey	1.00			Hard to compact	1.00
8590A:						
Cairo	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Seepage	1.00	Seepage	1.00	Hard to compact	1.00
	Too clayey	1.00				
8682B:						
Medway	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Seepage	0.22
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.11
	Seepage	1.00	Seepage	1.00		
8787A:						
Banlic	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
MW:						
Miscellaneous water	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	

Table 15.—Construction Materials, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
75B, 75C, 75C3, 75D:				
Drury	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
79B, 79C2, 79C3, 79D2, 79D3, 79E, 79E2, 79E3, 79F:				
Menfro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
99G:				
Sandstone and limestone rock land	Not rated		Not rated	
164A, 164B:				
Stoy	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
214B, 214C2, 214C3, 214D2, 214D3:				
Hosmer	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
477B, 477C2, 477C3, 477D2, 477D3:				
Winfield	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
692D, 692D2, 692F:				
Menfro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Wellston	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 15.—Construction Materials, Part I—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
694D, 694D2, 694F:				
Menfro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Baxter	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
801B, 802D:				
Orthents	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
832F:				
Menfro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Clarksville	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
832G:				
Clarksville	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
Menfro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
833F:				
Menfro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Goss	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
833G:				
Goss	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Menfro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
834F, 834G:				
Wellston	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Westmore	Not rated		Not rated	
864:				
Pits	Not rated		Not rated	

Table 15.—Construction Materials, Part I—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
940D, 940D2:				
Zanesville----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Westmore------------	Not rated		Not rated	
977F, 977G:				
Wellston------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Neotoma-------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
1334A:				
Birds---------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
1426A:				
Karnak--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3071A, 3071L:				
Darwin--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3092BL:				
Sarpy---------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.28
	Thickest layer	0.00	Bottom layer	0.80
3162L:				
Gorham--------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.63
3180A:				
Dupo----------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3288A:				
Petrolia------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3331A:				
Haymond-------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
3333A:				
Wakeland------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 15.—Construction Materials, Part I—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
3334A:				
Birds	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3426A:				
Karnak	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3456B:				
Ware	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.05
3590L:				
Cairo	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.10
3682BL:				
Medway	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.10
5079B2, 5079C3, 5079D3, 5079E3:				
Menfro	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
5214B2, 5214C3, 5214D3:				
Hosmer	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8071A:				
Darwin	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8085A:				
Jacob	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8092B:				
Sarpy	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.28
	Thickest layer	0.00	Bottom layer	0.80
8162A:				
Gorham	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.63
8180A:				
Dupo	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 15.—Construction Materials, Part I—Continued

Map symbol and soil name	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
8284A:				
Tice----------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8331A:				
Haymond-------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
8333A:				
Wakeland------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8334A:				
Birds---------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8420A:				
Piopolis------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8422A:				
Cape----------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8426A:				
Karnak--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
8427B:				
Burnside------------	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
8456B:				
Ware----------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.05
8475B:				
Elsah---------------	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
8589B:				
Bowdre--------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
8590A:				
Cairo---------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.10

Table 15.—Construction Materials, Part I—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
8682B:				
Medway--------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.10
8787A:				
Banlic--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MW:				
Miscellaneous water-	Not rated		Not rated	
W:				
Water---------------	Not rated		Not rated	

Table 15.—Construction Materials, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
75B, 75C, 75C3:						
Drury	Fair		Good		Good	
	Low content of organic matter	0.02				
	Water erosion	0.68				
75D:						
Drury	Fair		Good		Fair	
	Low content of organic matter	0.02			Slope	0.04
	Water erosion	0.68				
79B, 79C2:						
Menfro	Fair		Poor		Good	
	Low content of organic matter	0.12	Low strength	0.00		
			Shrink-swell	0.87		
	Water erosion	0.90				
	Too acid	0.97				
79C3:						
Menfro	Fair		Poor		Good	
	Low content of organic matter	0.12	Low strength	0.00		
			Shrink-swell	0.89		
	Water erosion	0.90				
	Too acid	0.97				
79D2:						
Menfro	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
			Shrink-swell	0.87		
	Water erosion	0.90				
	Too acid	0.97				
79D3:						
Menfro	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
			Shrink-swell	0.89		
	Water erosion	0.90				
	Too acid	0.97				
79E, 79E2:						
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.18		
	Water erosion	0.90	Shrink-swell	0.87		
	Too acid	0.97				
79E3:						
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.18		
	Water erosion	0.90	Shrink-swell	0.89		
	Too acid	0.97				

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
79F:						
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
	Water erosion	0.90	Low strength	0.00		
	Too acid	0.97	Shrink-swell	0.87		
99G:						
Sandstone and limestone rock land	Not rated		Not rated		Not rated	
164A, 164B:						
Stoy	Fair		Poor		Fair	
	Low content of organic matter	0.08	Low strength	0.00	Depth to saturated zone	0.12
	Too acid	0.32	Depth to saturated zone	0.12	Too clayey	0.64
	Water erosion	0.90	Shrink-swell	0.99	Too acid	0.88
	Too clayey	0.98				
214B:						
Hosmer	Fair		Poor		Fair	
	Too acid	0.32	Depth to cemented pan	0.00	Depth to cemented pan	0.36
	Depth to cemented pan	0.36	Low strength	0.22	Depth to saturated zone	0.76
	Low content of organic matter	0.50	Depth to saturated zone	0.76	Too acid	0.88
	Water erosion	0.90	Shrink-swell	0.87		
	Droughty	0.99				
214C2:						
Hosmer	Fair		Poor		Fair	
	Depth to cemented pan	0.14	Depth to cemented pan	0.00	Depth to cemented pan	0.14
	Too acid	0.32	Low strength	0.22	Depth to saturated zone	0.76
	Low content of organic matter	0.50	Depth to saturated zone	0.76	Too acid	0.88
	Droughty	0.84	Shrink-swell	0.87		
	Water erosion	0.90				
214C3:						
Hosmer	Fair		Poor		Fair	
	Depth to cemented pan	0.14	Depth to cemented pan	0.00	Depth to cemented pan	0.14
	Too acid	0.32	Low strength	0.22	Depth to saturated zone	0.76
	Low content of organic matter	0.50	Depth to saturated zone	0.76	Too acid	0.88
	Droughty	0.70	Shrink-swell	0.93		
	Water erosion	0.90				
214D2:						
Hosmer	Fair		Poor		Fair	
	Depth to cemented pan	0.14	Depth to cemented pan	0.00	Slope	0.04
	Too acid	0.32	Low strength	0.22	Depth to cemented pan	0.14
	Low content of organic matter	0.50	Depth to saturated zone	0.76	Depth to saturated zone	0.76
	Droughty	0.84	Shrink-swell	0.87	Too acid	0.88
	Water erosion	0.90				

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
214D3:						
Hosmer	Fair		Poor		Fair	
	Depth to cemented pan	0.05	Depth to cemented pan	0.00	Slope	0.04
	Too acid	0.32	Low strength	0.22	Depth to cemented pan	0.05
	Low content of organic matter	0.50	Depth to saturated zone	0.76	Depth to saturated zone	0.76
	Droughty	0.62	Shrink-swell	0.87	Too acid	0.88
	Water erosion	0.90				
477B:						
Winfield	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.98
	Too acid	0.68	Shrink-swell	0.90		
	Water erosion	0.99	Depth to saturated zone	0.98		
477C2:						
Winfield	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.98
	Too acid	0.68	Shrink-swell	0.93		
	Water erosion	0.99	Depth to saturated zone	0.98		
477C3:						
Winfield	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.98
	Too acid	0.68	Shrink-swell	0.94		
	Water erosion	0.99	Depth to saturated zone	0.98		
477D2:						
Winfield	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.98
	Too acid	0.68	Shrink-swell	0.93		
	Water erosion	0.99	Depth to saturated zone	0.98		
477D3:						
Winfield	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
	Too acid	0.68	Shrink-swell	0.94	Depth to saturated zone	0.98
	Water erosion	0.99	Depth to saturated zone	0.98		
692D:						
Menfro	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
	Water erosion	0.90	Shrink-swell	0.87		
	Too acid	0.97				
Wellston	Fair		Good		Fair	
	Too acid	0.54			Slope	0.04
	Low content of organic matter	0.88			Hard to reclaim, rock fragments	0.32
	Water erosion	0.90			Rock fragments	0.97
					Too acid	0.98

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
692D2:						
Menfro	Fair		Fair		Fair	
	Low content of organic matter	0.12	Shrink-swell	0.87	Slope	0.04
	Water erosion	0.90				
	Too acid	0.97				
Wellston	Fair		Fair		Fair	
	Too acid	0.54	Depth to bedrock	0.98	Slope	0.04
	Low content of organic matter	0.88			Hard to reclaim, rock fragments	0.32
	Water erosion	0.90			Rock fragments	0.97
					Too acid	0.98
692F:						
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
			Shrink-swell	0.87		
	Water erosion	0.90				
	Too acid	0.97				
Wellston	Fair		Poor		Poor	
	Too acid	0.54	Slope	0.00	Slope	0.00
	Low content of organic matter	0.88			Hard to reclaim, rock fragments	0.32
	Water erosion	0.90			Rock fragments	0.97
					Too acid	0.98
694D:						
Menfro	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
			Shrink-swell	0.87		
	Water erosion	0.90				
	Too acid	0.97				
Baxter	Poor		Fair		Poor	
	Too clayey	0.00	Shrink-swell	0.92	Too clayey	0.00
	Low content of organic matter	0.01			Rock fragments	0.00
					Slope	0.04
	Too acid	0.32			Hard to reclaim, rock fragments	0.18
					Too acid	0.88
694D2:						
Menfro	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
			Shrink-swell	0.87		
	Water erosion	0.90				
	Too acid	0.97				
Baxter	Poor		Fair		Poor	
	Too clayey	0.00	Shrink-swell	0.89	Too clayey	0.00
	Low content of organic matter	0.01			Rock fragments	0.00
					Slope	0.04
	Too acid	0.32			Hard to reclaim, rock fragments	0.18
					Too acid	0.88

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
694F:						
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.00		
	Water erosion	0.90	Shrink-swell	0.87		
	Too acid	0.97				
Baxter	Poor		Poor		Poor	
	Too clayey	0.00	Slope	0.00	Slope	0.00
	Low content of organic matter	0.01	Shrink-swell	0.92	Too clayey	0.00
					Rock fragments	0.00
	Too acid	0.32			Hard to reclaim, rock fragments	0.18
					Too acid	0.88
801B:						
Orthents	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.84	Low strength	0.00		
	Water erosion	0.90	Shrink-swell	0.87		
802D:						
Orthents	Fair		Poor		Poor	
	Low content of organic matter	0.50	Low strength	0.00	Hard to reclaim, dense layer	0.00
			Shrink-swell	0.87		
	Water erosion	0.90			Slope	0.63
832F:						
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.00		
	Water erosion	0.90	Shrink-swell	0.87		
	Too acid	0.97				
Clarksville	Fair		Poor		Poor	
	Low content of organic matter	0.11	Slope	0.00	Slope	0.00
			Shrink-swell	0.98	Hard to reclaim, rock fragments	0.00
	Too acid	0.50				
					Rock fragments	0.03
					Too acid	0.76
832G:						
Clarksville	Fair		Poor		Poor	
	Low content of organic matter	0.11	Slope	0.00	Slope	0.00
			Shrink-swell	0.98	Hard to reclaim, rock fragments	0.00
	Too acid	0.50				
					Rock fragments	0.03
					Too acid	0.76
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
			Low strength	0.00		
	Water erosion	0.90	Shrink-swell	0.87		
	Too acid	0.97				

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
833F:						
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
	Water erosion	0.90	Shrink-swell	0.87		
	Too acid	0.97				
Goss	Poor		Poor		Poor	
	Too clayey	0.00	Slope	0.00	Slope	0.00
	Low content of organic matter	0.12	Cobble content	0.44	Rock fragments	0.00
	Too acid	0.54	Shrink-swell	0.97	Hard to reclaim, rock fragments	0.00
	Droughty	0.99			Too clayey	0.00
					Too acid	0.98
833G:						
Goss	Poor		Poor		Poor	
	Too clayey	0.00	Slope	0.00	Slope	0.00
	Low content of organic matter	0.12	Cobble content	0.44	Rock fragments	0.00
	Too acid	0.54	Shrink-swell	0.97	Hard to reclaim, rock fragments	0.00
	Droughty	0.99			Too clayey	0.00
					Too acid	0.98
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
	Water erosion	0.90	Shrink-swell	0.87		
	Too acid	0.97				
834F, 834G:						
Wellston	Fair		Poor		Poor	
	Too acid	0.54	Slope	0.00	Slope	0.00
	Low content of organic matter	0.88			Hard to reclaim, rock fragments	0.32
	Water erosion	0.90			Rock fragments	0.97
					Too acid	0.98
Westmore	Fair		Poor		Poor	
	Too clayey	0.02	Low strength	0.00	Slope	0.00
	Low content of organic matter	0.24	Slope	0.00	Too clayey	0.01
	Too acid	0.54	Shrink-swell	0.28	Rock fragments	0.50
	Water erosion	0.90			Hard to reclaim, rock fragments	0.95
864:						
Pits	Not rated		Not rated		Not rated	
940D:						
Zanesville	Fair		Fair		Fair	
	Droughty	0.53	Depth to saturated zone	0.89	Slope	0.04
	Too acid	0.54			Depth to saturated zone	0.89
	Water erosion	0.90			Too acid	0.98

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
940D:						
Westmore	Fair		Poor		Fair	
	Too clayey	0.02	Low strength	0.00	Too clayey	0.01
	Low content of organic matter	0.24	Shrink-swell	0.28	Slope	0.04
					Rock fragments	0.50
	Too acid	0.54			Hard to reclaim, rock fragments	0.95
	Water erosion	0.90				
940D2:						
Zanesville	Fair		Fair		Fair	
	Droughty	0.17	Depth to saturated zone	0.89	Slope	0.04
	Too acid	0.54			Depth to saturated zone	0.89
	Water erosion	0.90	Depth to bedrock	0.98		
					Too acid	0.98
Westmore	Fair		Poor		Fair	
	Too clayey	0.02	Low strength	0.00	Too clayey	0.01
	Low content of organic matter	0.24	Shrink-swell	0.24	Slope	0.04
			Depth to bedrock	0.98	Rock fragments	0.50
	Too acid	0.54			Hard to reclaim, rock fragments	0.95
	Water erosion	0.90				
977F:						
Wellston	Fair		Poor		Poor	
	Too acid	0.54	Slope	0.00	Slope	0.00
	Low content of organic matter	0.88			Hard to reclaim, rock fragments	0.32
	Water erosion	0.90			Rock fragments	0.97
					Too acid	0.98
Neotoma	Fair		Poor		Poor	
	Low content of organic matter	0.02	Slope	0.00	Slope	0.00
			Cobble content	0.00	Hard to reclaim, rock fragments	0.00
	Cobble content	0.15	Depth to bedrock	0.39		
	Too acid	0.50			Rock fragments	0.00
	Droughty	0.77			Too acid	0.92
977G:						
Wellston	Fair		Poor		Poor	
	Too acid	0.54	Slope	0.00	Slope	0.00
	Low content of organic matter	0.88			Hard to reclaim, rock fragments	0.32
	Water erosion	0.90			Rock fragments	0.97
					Too acid	0.98
Neotoma	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
			Cobble content	0.00	Hard to reclaim, rock fragments	0.00
	Cobble content	0.28	Depth to bedrock	0.39		
	Too acid	0.50			Rock fragments	0.00
	Droughty	0.82			Too acid	0.92
1334A:						
Birds	Fair		Poor		Poor	
	Water erosion	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
1426A:						
Karnak	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
	Low content of organic matter	0.12	Shrink-swell	0.12	Depth to saturated zone	0.00
	Too acid	0.84				
3071A, 3071L:						
Darwin	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
			Shrink-swell	0.00	Depth to saturated zone	0.00
			Low strength	0.00		
3092BL:						
Sarpy	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Low content of organic matter	0.02				
	Droughty	0.98				
3162L:						
Gorham	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.50	Shrink-swell	0.97	Too clayey	0.34
3180A:						
Dupo	Fair		Poor		Poor	
	Water erosion	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.68	Low strength	0.00		
			Shrink-swell	0.61		
3288A:						
Petrolia	Fair		Poor		Poor	
	Low content of organic matter	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.98	Low strength	0.00	Too clayey	0.67
			Shrink-swell	0.87		
3331A:						
Haymond	Fair		Good		Good	
	Water erosion	0.68				
3333A:						
Wakeland	Fair		Poor		Poor	
	Low content of organic matter	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.68				
3334A:						
Birds	Fair		Poor		Poor	
	Water erosion	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
3426A:						
Karnak	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
	Low content of organic matter	0.12	Shrink-swell	0.12	Depth to saturated zone	0.00
	Too acid	0.84				
3456B:						
Ware	Fair		Good		Good	
	Low content of organic matter	0.24				
3590L:						
Cairo	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
	Droughty	0.12	Shrink-swell	0.12	Depth to saturated zone	0.00
3682BL:						
Medway	Fair		Good		Fair	
	Low content of organic matter	0.12			Too clayey	0.92
	Too clayey	0.92			Rock fragments	0.97
5079B2:						
Menfro	Fair		Poor		Good	
	Low content of organic matter	0.12	Low strength	0.00		
	Water erosion	0.90	Shrink-swell	0.87		
	Too acid	0.97				
5079C3:						
Menfro	Fair		Poor		Good	
	Low content of organic matter	0.12	Low strength	0.00		
	Water erosion	0.90	Shrink-swell	0.89		
	Too acid	0.97				
5079D3:						
Menfro	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
	Water erosion	0.90	Shrink-swell	0.89		
	Too acid	0.97				
5079E3:						
Menfro	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
	Water erosion	0.90	Slope	0.18		
	Too acid	0.97	Shrink-swell	0.89		

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
5214B2:						
Hosmer	Fair		Poor		Fair	
	Depth to cemented pan	0.14	Depth to cemented pan	0.00	Depth to cemented pan	0.14
	Too acid	0.32	Low strength	0.22	Depth to saturated zone	0.76
	Low content of organic matter	0.50	Depth to saturated zone	0.76	Too acid	0.88
	Droughty	0.84	Shrink-swell	0.87		
	Water erosion	0.90				
5214C3:						
Hosmer	Fair		Poor		Fair	
	Depth to cemented pan	0.05	Depth to cemented pan	0.00	Depth to cemented pan	0.05
	Too acid	0.32	Low strength	0.22	Depth to saturated zone	0.76
	Low content of organic matter	0.50	Depth to saturated zone	0.76	Too acid	0.88
	Droughty	0.62	Shrink-swell	0.87		
	Water erosion	0.90				
5214D3:						
Hosmer	Fair		Poor		Fair	
	Depth to cemented pan	0.05	Depth to cemented pan	0.00	Slope	0.04
	Too acid	0.32	Low strength	0.22	Depth to cemented pan	0.05
	Low content of organic matter	0.50	Depth to saturated zone	0.76	Depth to saturated zone	0.76
	Droughty	0.62	Shrink-swell	0.87	Too acid	0.88
	Water erosion	0.90				
8071A:						
Darwin	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
			Shrink-swell	0.00	Depth to saturated zone	0.00
			Low strength	0.00		
8085A:						
Jacob	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
	Too acid	0.12	Shrink-swell	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Too acid	0.59
8092B:						
Sarpy	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Low content of organic matter	0.02				
	Droughty	0.98				
8162A:						
Gorham	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.50	Shrink-swell	0.97	Too clayey	0.34

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
8180A:						
Dupo	Fair		Poor		Poor	
	Water erosion	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.68	Low strength	0.00		
			Shrink-swell	0.61		
8284A:						
Tice	Fair		Poor		Poor	
	Too clayey	0.98	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.22	Too clayey	0.97
			Shrink-swell	0.87		
8331A:						
Haymond	Fair		Good		Good	
	Water erosion	0.68				
8333A:						
Wakeland	Fair		Poor		Poor	
	Low content of organic matter	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.68				
8334A:						
Birds	Fair		Poor		Poor	
	Water erosion	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
8420A:						
Piopolis	Fair		Poor		Poor	
	Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.92	Low strength	0.00	Too clayey	0.72
			Shrink-swell	0.87	Too acid	0.88
8422A:						
Cape	Fair		Poor		Poor	
	Too acid	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.50	Low strength	0.00	Too clayey	0.47
			Shrink-swell	0.53		
8426A:						
Karnak	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
	Low content of organic matter	0.12	Shrink-swell	0.12	Depth to saturated zone	0.00
	Too acid	0.84				
8427B:						
Burnside	Fair		Fair		Poor	
	Too acid	0.50	Cobble content	0.75	Rock fragments	0.00
	Low content of organic matter	0.50	Depth to bedrock	0.98	Hard to reclaim, rock fragments	0.00
	Cobble content	0.99			Too acid	0.88

Table 15.—Construction Materials, Part II—Continued

Map symbol and soil name	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
8456B:						
Ware	Fair		Good		Good	
	Low content of organic matter	0.24				
8475B:						
Elsah	Fair		Fair		Poor	
	Low content of organic matter	0.12	Cobble content	0.92	Rock fragments	0.00
	Water erosion	0.68			Hard to reclaim, rock fragments	0.00
	Cobble content	0.98				
8589B:						
Bowdre	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Droughty	0.00	Low strength	0.00	Too clayey	0.00
			Shrink-swell	0.12		
8590A:						
Cairo	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Too clayey	0.00
	Droughty	0.12	Shrink-swell	0.12	Depth to saturated zone	0.00
8682B:						
Medway	Fair		Good		Fair	
	Low content of organic matter	0.12			Too clayey	0.92
	Too clayey	0.92			Rock fragments	0.97
8787A:						
Banlic	Fair		Fair		Poor	
	Too acid	0.32	Depth to saturated zone	0.04	Hard to reclaim, dense layer	0.00
	Low content of organic matter	0.50			Depth to saturated zone	0.04
	Droughty	0.52				
	Water erosion	0.68				
MW:						
Miscellaneous water	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	

Table 16.—Water Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75B, 75C, 75C3:							
Drury	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	No wetness limitation	1.00
75D:							
Drury	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	No wetness limitation	1.00
		Slope	0.02				
79B:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.03	No wetness limitation	1.00
79C2:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.04	No wetness limitation	1.00
79C3:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.05	No wetness limitation	1.00
79D2:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.04	No wetness limitation	1.00
		Slope	0.02				
79D3:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.05	No wetness limitation	1.00
		Slope	0.02				
79E:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.03	No wetness limitation	1.00
		Slope	0.18				
79E2:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.04	No wetness limitation	1.00
		Slope	0.18				
79E3:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.05	No wetness limitation	1.00
		Slope	0.18				
79F:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.03	No wetness limitation	1.00
		Slope	0.50				

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
99G:							
Sandstone rock land----------	45	Not rated		Not rated		Not rated	
Limestone rock land----------	40	Not rated		Not rated		Not rated	
164A, 164B:							
Stoy-----------	90	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	No wetness limitation	1.00
				Thin layer	0.70		
214B:							
Hosmer---------	85	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.91	Piping	1.00	No wetness limitation	1.00
		Seepage	0.72	Depth to saturated zone	0.95		
				Thin layer	0.91		
214C2, 214C3:							
Hosmer---------	85	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.97	Piping	1.00	No wetness limitation	1.00
				Thin layer	0.97		
		Seepage	0.72	Depth to saturated zone	0.95		
214D2:							
Hosmer---------	85	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.97	Piping	1.00	No wetness limitation	1.00
				Thin layer	0.97		
		Seepage	0.72	Depth to saturated zone	0.95		
		Slope	0.02				
214D3:							
Hosmer---------	85	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.99	Piping	1.00	No wetness limitation	1.00
				Thin layer	0.99		
		Seepage	0.72	Depth to saturated zone	0.95		
		Slope	0.02				
477B:							
Winfield-------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
						Depth to saturated zone	0.14
				Piping	0.08		
						Cutbanks cave	0.10
477C2:							
Winfield-------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
						Depth to saturated zone	0.14
				Piping	0.10		
						Cutbanks cave	0.10
477C3:							
Winfield-------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
						Depth to saturated zone	0.14
				Piping	0.11		
						Cutbanks cave	0.10

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
477D2:							
Winfield-------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
				Piping	0.10	Depth to saturated zone	0.14
						Cutbanks cave	0.10
477D3:							
Winfield-------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.28
		Slope	0.02	Piping	0.11	Depth to saturated zone	0.14
						Cutbanks cave	0.10
692D:							
Menfro---------	60	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.03	No wetness limitation	1.00
		Slope	0.02				
Wellston-------	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	0.99	No wetness limitation	1.00
		Slope	0.02				
692D2:							
Menfro---------	60	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.92	No wetness limitation	1.00
		Slope	0.02				
Wellston-------	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	0.99	No wetness limitation	1.00
		Slope	0.02	Thin layer	0.01		
		Depth to bedrock	0.01				
692F:							
Menfro---------	60	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.91	No wetness limitation	1.00
		Slope	0.36				
Wellston-------	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	0.99	No wetness limitation	1.00
		Slope	0.36				
694D:							
Menfro---------	50	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.03	No wetness limitation	1.00
		Slope	0.02				
Baxter---------	40	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Hard to pack	0.06	No wetness limitation	1.00
		Slope	0.02				
694D2:							
Menfro---------	50	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.04	No wetness limitation	1.00
		Slope	0.02				
Baxter---------	40	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Hard to pack	0.10	No wetness limitation	1.00
		Slope	0.02				

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
694F:							
Menfro---------	55	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.03	No wetness limitation	1.00
		Slope	0.36				
Baxter---------	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Hard to pack	0.06	No wetness limitation	1.00
		Slope	0.36				
801B:							
Orthents-------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Depth to saturated zone	1.00	Slow refill	0.46
						Cutbanks cave	0.10
				Piping	0.50		
802D:							
Orthents-------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Piping	0.50	No wetness limitation	1.00
		Slope	0.01				
832F:							
Menfro---------	45	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.03	No wetness limitation	1.00
		Slope	0.36				
Clarksville----	40	Very limited		Not limited		Very limited	
		Seepage	1.00			No wetness limitation	1.00
		Slope	0.36				
832G:							
Clarksville----	45	Very limited		Not limited		Very limited	
		Seepage	1.00			No wetness limitation	1.00
		Slope	1.00				
Menfro---------	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.03	No wetness limitation	1.00
		Seepage	0.72				
833F:							
Menfro---------	60	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.91	No wetness limitation	1.00
		Slope	0.36				
Goss-----------	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Large stones content	0.03	No wetness limitation	1.00
		Slope	0.36				
833G:							
Goss-----------	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Large stones content	0.03	No wetness limitation	1.00
		Slope	1.00				
Menfro---------	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.91	No wetness limitation	1.00
		Seepage	0.72				

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
834F:							
Wellston	50	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	0.99	No wetness limitation	1.00
		Slope	0.36				
Westmore	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Hard to pack	0.06	No wetness limitation	1.00
		Slope	0.36				
834G:							
Wellston	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	No wetness limitation	1.00
		Seepage	0.72				
Westmore	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.06	No wetness limitation	1.00
		Seepage	0.72				
864:							
Pits	90	Not rated		Not rated		Not rated	
940D:							
Zanesville	45	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.99	Thin layer	0.99	No wetness limitation	1.00
				Piping	0.95		
		Seepage	0.72	Depth to saturated zone	0.86		
		Slope	0.02				
Westmore	45	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Hard to pack	0.06	No wetness limitation	1.00
		Slope	0.02				
940D2:							
Zanesville	45	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	No wetness limitation	1.00
				Piping	0.93		
		Seepage	0.54	Depth to saturated zone	0.86		
		Slope	0.02				
		Depth to bedrock	0.01				
Westmore	45	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.44	Hard to pack	0.08	No wetness limitation	1.00
		Slope	0.02	Thin layer	0.01		
		Depth to bedrock	0.01				
977F:							
Wellston	45	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	0.99	No wetness limitation	1.00
		Slope	0.36				
Neotoma	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Large stones content	0.59	No wetness limitation	1.00
		Slope	0.36				
		Depth to bedrock	0.16	Thin layer	0.16		

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
977G:							
Wellston-------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	No wetness limitation	1.00
		Seepage	0.72				
Neotoma--------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Large stones content	0.36	No wetness limitation	1.00
		Slope	1.00				
		Depth to bedrock	0.16	Thin layer	0.16		
1334A:							
Birds----------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.96
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.95		
1426A:							
Karnak---------	85	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.70		
3071A:							
Darwin---------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.99		
3071L:							
Darwin---------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.99		
3092BL:							
Sarpy----------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.80	No wetness limitation	1.00
3162L:							
Gorham---------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00		
				Piping	0.71		
				Seepage	0.63		
3180A:							
Dupo-----------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	No wetness limitation	1.00
				Hard to pack	0.32		

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3288A:							
Petrolia-------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.96
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.13		
3331A:							
Haymond--------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Piping	1.00	Depth to saturated zone	0.81
				Seepage	0.01	Slow refill	0.28
						Cutbanks cave	0.10
3333A:							
Wakeland-------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
3334A:							
Birds----------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.96
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.95		
3426A:							
Karnak---------	85	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.70		
3456B:							
Ware-----------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.05	No wetness limitation	1.00
3590L:							
Cairo----------	90	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Hard to pack	1.00		
				Thin layer	0.86		
				Seepage	0.10		
3682BL:							
Medway---------	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Seepage	0.10		
5079B2:							
Menfro---------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.04	No wetness limitation	1.00

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5079C3:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.05	No wetness limitation	1.00
5079D3:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.05	No wetness limitation	1.00
		Slope	0.02				
5079E3:							
Menfro	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.05	No wetness limitation	1.00
		Slope	0.18				
5214B2:							
Hosmer	85	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.97	Piping	1.00	No wetness limitation	1.00
				Thin layer	0.97		
		Seepage	0.72	Depth to saturated zone	0.95		
5214C3:							
Hosmer	85	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.99	Piping	1.00	No wetness limitation	1.00
				Thin layer	0.99		
		Seepage	0.72	Depth to saturated zone	0.95		
5214D3:							
Hosmer	85	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.99	Piping	1.00	No wetness limitation	1.00
				Thin layer	0.99		
		Seepage	0.72	Depth to saturated zone	0.95		
		Slope	0.02				
8071A:							
Darwin	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.99		
8085A:							
Jacob	90	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Ponding	1.00		
				Hard to pack	0.97		
8092B:							
Sarpy	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.80	No wetness limitation	1.00

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
8162A:							
Gorham----------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00		
				Piping	0.71		
				Seepage	0.63		
8180A:							
Dupo------------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	No wetness limitation	1.00
				Hard to pack	0.32		
8284A:							
Tice------------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	0.30		
8331A:							
Haymond---------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Piping	1.00	Depth to saturated zone	0.81
				Seepage	0.01		
						Slow refill	0.28
						Cutbanks cave	0.10
8333A:							
Wakeland--------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	1.00		
8334A:							
Birds-----------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.96
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.95		
8420A:							
Piopolis--------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
8422A:							
Cape------------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.47		
8426A:							
Karnak----------	85	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.70		

Table 16.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
8427B:							
Burnside	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.01	No wetness limitation	1.00
		Depth to bedrock	0.01				
8456B:							
Ware	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.05	No wetness limitation	1.00
8475B:							
Elsah	85	Very limited		Not limited		Very limited	
		Seepage	1.00			No wetness limitation	1.00
8589B:							
Bowdre	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Thin layer	1.00	Cutbanks cave	0.10
				Hard to pack	0.82		
				Seepage	0.01		
8590A:							
Cairo	90	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Hard to pack	1.00		
				Thin layer	0.86		
				Seepage	0.10		
8682B:							
Medway	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Seepage	0.10		
8787A:							
Banlic	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Depth to saturated zone	1.00	No wetness limitation	1.00
				Piping	1.00		
				Thin layer	1.00		
MW:							
Miscellaneous water	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 16.—Water Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains		Terraces and diversions		Tile drains and underground outlets	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75B:							
Drury----------	85	Somewhat limited		Very limited		Not limited	
		Slope	0.37	K factor	1.00		
				Slope	0.37		
75C, 75C3:							
Drury----------	85	Very limited		Very limited		Not limited	
		Slope	1.00	K factor	1.00		
				Slope	1.00		
75D:							
Drury----------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
79B:							
Menfro---------	85	Somewhat limited		Very limited		Not limited	
		Slope	0.37	K factor	1.00		
				Slope	0.37		
79C2, 79C3:							
Menfro---------	85	Very limited		Very limited		Not limited	
		Slope	1.00	K factor	1.00		
				Slope	1.00		
79D2, 79D3:							
Menfro---------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
79E, 79E2, 79E3, 79F:							
Menfro--------	85	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
99G:							
Sandstone rock land---------	45	Not rated		Not rated		Not rated	
Limestone rock land---------	40	Not rated		Not rated		Not rated	
164A:							
Stoy-----------	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
164B:							
Stoy----------	90	Somewhat limited		Very limited		Very limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.37		
214B:							
Hosmer--------	85	Somewhat limited		Very limited		Very limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.37		
214C2, 214C3:							
Hosmer--------	85	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	1.00		
214D2, 214D3:							
Hosmer--------	85	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	1.00
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		
477B:							
Winfield------	85	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	0.37		
477C2, 477C3, 477D2:							
Winfield-----	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	1.00		
477D3:							
Winfield------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		
692D, 692D2:							
Menfro--------	60	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
Wellston------	30	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
692F:							
Menfro	60	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Wellston	30	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
694D, 694D2:							
Menfro	50	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
Baxter	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Expect caving	1.00
				K factor	0.50	Slope	0.96
						Too clayey	0.92
694F:							
Menfro	55	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Baxter	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				K factor	0.50	Expect caving	1.00
						Too clayey	0.92
801B:							
Orthents	85	Somewhat limited		Very limited		Very limited	
		Slope	0.16	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.16		
802D:							
Orthents	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Dense layer	0.50
				Slope	1.00	Slope	0.37
832F:							
Menfro	45	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Clarksville	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.92	Content of large stones	0.92	Expect caving	1.00
				K factor	0.88	Too clayey	0.01
832G:							
Clarksville	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.92	Content of large stones	0.92	Expect caving	1.00
				K factor	0.88	Too clayey	0.01

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
832G:							
Menfro	40	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
833F:							
Menfro	60	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Goss	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Expect caving	1.00
						Too clayey	0.95
				K factor	0.50	Content of large stones	0.03
833G:							
Goss	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Expect caving	1.00
						Too clayey	0.95
				K factor	0.50	Content of large stones	0.03
Menfro	30	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
834F, 834G:							
Wellston	50	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Westmore	35	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00	Expect caving	1.00
864:							
Pits	90	Not rated		Not rated		Not rated	
940D:							
Zanesville	45	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00		
				Depth to saturated zone	1.00	Slope	0.96
						Too clayey	0.01
Westmore	45	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Expect caving	1.00
				Slope	1.00	Slope	0.96
940D2:							
Zanesville	45	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
		Depth to hard bedrock	0.02	Slope	1.00		
				Depth to saturated zone	1.00	Slope	0.96
						Too clayey	0.08
				Depth to hard bedrock	0.02	Depth to hard bedrock	0.02

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
940D2:							
Westmore------	45	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Expect caving	1.00
				Slope	1.00	Slope	0.96
977F:							
Wellston------	45	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Neotoma-------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Depth to hard bedrock	0.61
		Depth to hard bedrock	0.61	Depth to hard bedrock	0.61	Content of large stones	0.59
977G:							
Wellston------	45	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Neotoma-------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Depth to hard bedrock	0.61
		Depth to hard bedrock	0.61	Depth to hard bedrock	0.61	Content of large stones	0.36
1334A:							
Birds---------	90	Not limited		Very limited		Very limited	
				K factor	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent flooding	0.80
1426A:							
Karnak--------	85	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.50	Too clayey	0.95
						Frequent flooding	0.80
3071A, 3071L:							
Darwin--------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.12	Frequent flooding	0.80
						Too clayey	0.28
3092BL:							
Sarpy---------	85	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Too sandy	1.00	Expect caving	1.00
				Slope	0.63	Frequent flooding	0.80

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
3162L:							
Gorham--------	90	Somewhat limited		Very limited		Very limited	
		Slope	0.04	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Too sandy	1.00	Expect caving	1.00
				K factor	0.50	Frequent flooding	0.80
				Slope	0.04		
3180A:							
Dupo----------	85	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent flooding	0.80
						Too clayey	0.24
3288A:							
Petrolia------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Frequent flooding	0.80
3331A:							
Haymond-------	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	K factor	1.00	Frequent flooding	0.80
				Slope	0.04	Depth to saturated zone	0.60
3333A:							
Wakeland------	85	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent flooding	0.80
3334A:							
Birds---------	90	Not limited		Very limited		Very limited	
				K factor	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent flooding	0.80
3426A:							
Karnak--------	85	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.50	Too clayey	0.95
						Frequent flooding	0.80
3456B:							
Ware----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	K factor	0.88	Frequent flooding	0.80
				Slope	0.37		

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
3590L:							
Cairo----------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.50	Frequent flooding	0.80
						Too clayey	0.32
3682BL:							
Medway---------	85	Somewhat limited		Very limited		Very limited	
		Slope	0.37	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Frequent flooding	0.80
				Slope	0.37		
5079B2:							
Menfro---------	85	Somewhat limited		Very limited		Not limited	
		Slope	0.37	K factor	1.00		
				Slope	0.37		
5079C3:							
Menfro---------	85	Very limited		Very limited		Not limited	
		Slope	1.00	K factor	1.00		
				Slope	1.00		
5079D3:							
Menfro---------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
5079E3:							
Menfro---------	85	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
5214B2:							
Hosmer---------	85	Somewhat limited		Very limited		Very limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.37		
5214C3:							
Hosmer---------	85	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	1.00		
5214D3:							
Hosmer---------	85	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	1.00
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
8071A:							
Darwin--------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.12	Occasional flooding	0.60
						Too clayey	0.28
8085A:							
Jacob---------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.50	Too clayey	1.00
						Occasional flooding	0.60
8092B:							
Sarpy---------	85	Somewhat limited		Very limited		Very limited	
		Slope	0.63	Too sandy	1.00	Expect caving	1.00
				Slope	0.63	Occasional flooding	0.60
8162A:							
Gorham--------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Too sandy	1.00	Expect caving	1.00
				K factor	0.50	Occasional flooding	0.60
8180A:							
Dupo----------	85	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Occasional flooding	0.60
						Too clayey	0.24
8284A:							
Tice----------	85	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Occasional flooding	0.60
8331A:							
Haymond-------	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	K factor	1.00	Occasional flooding	0.60
				Slope	0.04	Depth to saturated zone	0.60

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
8333A:							
Wakeland------	85	Not limited		Very limited K factor Depth to saturated zone	 1.00 1.00	Very limited Depth to saturated zone Occasional flooding	 1.00 0.60
8334A:							
Birds---------	90	Not limited		Very limited K factor Ponding Depth to saturated zone	 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Occasional flooding	 1.00 1.00 0.60
8420A:							
Piopolis------	90	Not limited		Very limited Ponding Depth to saturated zone K factor	 1.00 1.00 0.88	Very limited Ponding Depth to saturated zone Occasional flooding	 1.00 1.00 0.60
8422A:							
Cape----------	90	Not limited		Very limited Ponding Depth to saturated zone K factor	 1.00 1.00 0.88	Very limited Ponding Depth to saturated zone Occasional flooding Too clayey	 1.00 1.00 0.60 0.50
8426A:							
Karnak--------	85	Not limited		Very limited Ponding Depth to saturated zone K factor	 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Too clayey Occasional flooding	 1.00 1.00 0.95 0.60
8427B:							
Burnside------	90	Very limited Content of large stones Slope Depth to hard bedrock	 1.00 0.16 0.02	Very limited Content of large stones K factor Slope Depth to hard bedrock	 1.00 0.88 0.16 0.02	Somewhat limited Occasional flooding Depth to hard bedrock	 0.60 0.02
8456B:							
Ware----------	85	Somewhat limited Slope	 0.37	Somewhat limited K factor Slope	 0.88 0.37	Somewhat limited Occasional flooding	 0.60

Table 16.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Grassed waterways and surface drains: Rating class and limiting features	Value	Terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
8475B:							
Elsah	85	Very limited		Very limited		Very limited	
		Content of large stones	1.00	K factor	1.00	Expect caving	1.00
		Slope	0.16	Content of large stones	1.00	Occasional flooding	0.60
				Slope	0.16		
8589B:							
Bowdre	90	Somewhat limited		Very limited		Very limited	
		Slope	0.37	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Occasional flooding	0.60
				Slope	0.37		
8590A:							
Cairo	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.50	Occasional flooding	0.60
						Too clayey	0.32
8682B:							
Medway	85	Somewhat limited		Very limited		Very limited	
		Slope	0.37	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Occasional flooding	0.60
				Slope	0.37		
8787A:							
Banlic	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Occasional flooding	0.60
MW:							
Miscellaneous water	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 16.—Water Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods)		Sprinkler irrigation		Drip or trickle irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75B:							
Drury---------	85	Somewhat limited		Very limited		Not limited	
		Slope	0.08	Water erodibility	1.00		
75C, 75C3:							
Drury---------	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.10	Slopes, sprinkler irrigation	0.10		
75D:							
Drury---------	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
79B:							
Menfro--------	85	Somewhat limited		Very limited		Not limited	
		Too acid	0.08	Water erodibility	1.00		
		Slope	0.08				
79C2, 79C3:							
Menfro--------	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.10	Slopes, sprinkler irrigation	0.10		
		Too acid	0.08				
79D2, 79D3:							
Menfro--------	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Too acid	0.08				
79E, 79E2, 79E3, 79F:							
Menfro-------	85	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.08				
99G:							
Sandstone rock land---------	45	Not rated		Not rated		Not rated	
Limestone rock land---------	40	Not rated		Not rated		Not rated	

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods): Rating class and limiting features	Value	Sprinkler irrigation: Rating class and limiting features	Value	Drip or trickle irrigation: Rating class and limiting features	Value
164A:							
Stoy----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00				
		Too acid	0.22				
164B:							
Stoy----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00	Water erodibility	1.00		
		Too acid	0.22				
		Slope	0.08				
214B:							
Hosmer--------	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.95	Cemented pan	1.00	Cemented pan	0.65
		Too acid	0.78	Water erodibiilty	1.00		
		Cemented pan	0.65	Droughty	0.01		
		Slope	0.08				
		Droughty	0.01				
214C2:							
Hosmer--------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Cemented pan	1.00	Cemented pan	0.86
		Depth to saturated zone	0.95	Water erodibility	1.00		
		Cemented pan	0.86	Droughty	0.35		
		Too acid	0.78	Slopes, sprinkler irrigation	0.10		
		Droughty	0.18				
214C3:							
Hosmer--------	85	Very limited		Very limited		Somewhat limited	
		Percs slowly	1.00	Cemented pan	1.00	Cemented pan	0.86
		Slope	1.00	Water erodibility	1.00		
		Depth to saturated zone	0.95	Droughty	0.65		
		Cemented pan	0.86	Slopes, sprinkler irrigation	0.10		
		Too acid	0.78				
214D2:							
Hosmer--------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Cemented pan	1.00	Cemented pan	0.86
		Slopes, sprinkler irrigation	0.98	Water erodibility	1.00		
		Depth to saturated zone	0.95	Slopes, sprinkler irrigation	0.98		
		Cemented pan	0.86	Droughty	0.35		
		Too acid	0.78				
214D3:							
Hosmer--------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Cemented pan	1.00	Cemented pan	0.95
		Slopes, sprinkler irrigation	0.98	Water erodibility	1.00		
		Depth to saturated zone	0.95	Slopes, sprinkler irrigation	0.98		
		Cemented pan	0.95	Droughty	0.75		
		Too acid	0.78				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
477B:							
Winfield------	85	Somewhat limited		Very limited		Not limited	
		Depth to saturated zone	0.68	Water erodibility	1.00		
		Slope	0.08				
477C2, 477C3, 477D2:							
Winfield-----	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Depth to saturated zone	0.68	Slopes, sprinkler irrigation	0.10		
		Slopes, sprinkler irrigation	0.10				
477D3:							
Winfield------	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Depth to saturated zone	0.68				
692D, 692D2:							
Menfro--------	60	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Too acid	0.08				
Wellston------	30	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Too acid	0.44				
692F:							
Menfro--------	60	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.08				
Wellston------	30	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.44				
694D:							
Menfro--------	50	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Too acid	0.08				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods): Rating class and limiting features	Value	Sprinkler irrigation: Rating class and limiting features	Value	Drip or trickle irrigation: Rating class and limiting features	Value
694D:							
Baxter--------	40	Very limited		Somewhat limited		Not limited	
		Slope	1.00	Slopes, sprinkler irrigation	0.98		
		Slopes, sprinkler irrigation	0.98	Droughty	0.05		
		Too acid	0.78				
694D2:							
Menfro--------	50	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Too acid	0.08				
Baxter--------	40	Very limited		Somewhat limited		Not limited	
		Slope	1.00	Slopes, sprinkler irrigation	0.98		
		Slopes, sprinkler irrigation	0.98	Droughty	0.09		
		Too acid	0.78				
694F:							
Menfro--------	55	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.08				
Baxter--------	35	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Droughty	0.05		
		Too acid	0.78				
801B:							
Orthents------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Too acid	0.44	Water erodibility	1.00		
802D:							
Orthents------	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.60	Slopes, sprinkler irrigation	0.60		
		Percs slowly	0.31				
832F:							
Menfro--------	45	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.08				
Clarksville---	40	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Droughty	0.98		
		Too acid	1.00				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods)		Sprinkler irrigation		Drip or trickle irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
832G:							
Clarksville---	45	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Droughty	0.98		
		Too acid	1.00				
Menfro--------	40	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.08				
833F:							
Menfro--------	60	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.08				
Goss----------	30	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Droughty	1.00		
		Slope	1.00	Slopes, sprinkler irrigation	1.00		
		Too acid	0.78	Content of large stones	0.50		
		Droughty	0.01				
833G:							
Goss----------	60	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Droughty	1.00		
		Slope	1.00	Slopes, sprinkler irrigation	1.00		
		Too acid	0.78	Content of large stones	0.50		
		Droughty	0.01				
Menfro--------	30	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.08				
834F, 834G:							
Wellston------	50	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.44				
Westmore------	35	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Percs slowly	0.61				
		Too acid	0.08				
864:							
Pits----------	90	Not rated		Not rated		Not rated	

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
940D:							
Zanesville----	45	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Cemented pan	1.00	Cemented pan	0.97
		Slopes, sprinkler irrigation	0.98	Water erodibility	1.00		
		Cemented pan	0.97	Slopes, sprinkler irrigation	0.98		
		Too acid	0.92	Droughty	0.85		
		Depth to saturated zone	0.86				
Westmore------	45	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Percs slowly	0.61				
		Too acid	0.08				
940D2:							
Zanesville----	45	Very limited		Very limited		Very limited	
		Slope	1.00	Cemented pan	1.00	Cemented pan	1.00
		Cemented pan	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Droughty	1.00		
		Too acid	0.92	Slopes, sprinkler irrigation	0.98		
		Droughty	0.88				
Westmore------	45	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Percs slowly	0.61				
		Too acid	0.08				
977F:							
Wellston------	45	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.44				
Neotoma-------	45	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Droughty	0.90		
		Too acid	0.44	Content of large stones	0.50		
		Droughty	0.27				
		Surface stones	0.12	Depth to hard bedrock	0.01		
977G:							
Wellston------	45	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.44				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
977G:							
Neotoma	45	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Droughty	0.84		
		Too acid	0.44	Content of large stones	0.50		
		Droughty	0.21				
		Surface stones	0.12	Depth to hard bedrock	0.01		
1334A:							
Birds	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	1.00	Wetness	1.00
		Frequent flooding	0.80				
		Percs slowly	0.31				
1426A:							
Karnak	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00				
		Frequent flooding	0.80	Droughty	0.87		
		Too acid	0.44				
3071A, 3071L:							
Darwin	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Frequent flooding	0.80	Droughty	0.32		
3092BL:							
Sarpy	85	Somewhat limited		Very limited		Very limited	
		Frequent flooding	0.80	Flooding	1.00	Flooding	1.00
		Slope	0.32	Wind erosion	1.00		
		Droughty	0.03	Droughty	1.00		
3162L:							
Gorham	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	1.00	Wetness	1.00
		Frequent flooding	0.80				
		Percs slowly	0.31				
3180A:							
Dupo	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00				
		Frequent flooding	0.80				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
3288A:							
Petrolia------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Frequent flooding	0.80	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	0.31				
3331A:							
Haymond-------	90	Somewhat limited		Very limited		Very limited	
		Frequent flooding	0.80	Flooding	1.00	Flooding	1.00
3333A:							
Wakeland------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Frequent flooding	0.80	Depth to saturated zone	1.00	Wetness	1.00
3334A:							
Birds---------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Frequent flooding	0.80	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	0.31				
3426A:							
Karnak--------	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00	Flooding	1.00
		Percs slowly	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Frequent flooding	0.80	Droughty	0.87		
		Too acid	0.44				
3456B:							
Ware----------	85	Somewhat limited		Very limited		Very limited	
		Frequent flooding	0.80	Flooding	1.00	Flooding	1.00
		Slope	0.08				
3590L:							
Cairo---------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Droughty	0.93	Droughty	1.00		
		Frequent flooding	0.80				
3682BL:							
Medway--------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Wetness	1.00
		Frequent flooding	0.80			Flooding	1.00
		Slope	0.08				
5079B2:							
Menfro--------	85	Somewhat limited		Very limited		Not limited	
		Too acid	0.08	Water erodibility	1.00		
		Slope	0.08				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
5079C3:							
Menfro--------	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.10	Slopes, sprinkler irrigation	0.10		
		Too acid	0.08				
5079D3:							
Menfro--------	85	Very limited		Very limited		Not limited	
		Slope	1.00	Water erodibility	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Too acid	0.08				
5079E3:							
Menfro--------	85	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erodibility	1.00		
		Too acid	0.08				
5214B2:							
Hosmer--------	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.95	Cemented pan	1.00	Cemented pan	0.86
		Cemented pan	0.86	Water erodibility	1.00		
		Too acid	0.78	Droughty	0.35		
		Droughty	0.18				
		Slope	0.08				
5214C3:							
Hosmer--------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Cemented pan	1.00	Cemented pan	0.95
		Depth to saturated zone	0.95	Water erodibility	1.00		
		Cemented pan	0.95	Droughty	0.75		
		Too acid	0.78	Slopes, sprinkler irrigation	0.10		
		Droughty	0.43				
5214D3:							
Hosmer--------	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Cemented pan	1.00	Cemented pan	0.95
		Slopes, sprinkler irrigation	0.98	Water erodibility	1.00		
		Depth to saturated zone	0.95	Slopes, sprinkler irrigation	0.98		
		Cemented pan	0.95	Droughty	0.75		
		Too acid	0.78				
8071A:							
Darwin--------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Droughty	0.32		
		Occasional flooding	0.60				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods)		Sprinkler irrigation		Drip or trickle irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8085A:							
Jacob	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Droughty	0.68		
		Occasional flooding	0.60				
		Too acid	0.44				
8092B:							
Sarpy	85	Somewhat limited		Very limited		Not limited	
		Occasional flooding	0.60	Wind erosion	1.00		
		Slope	0.32	Droughty	1.00		
		Droughty	0.03				
8162A:							
Gorham	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Occasional flooding	0.60				
		Percs slowly	0.31				
8180A:							
Dupo	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00				
		Occasional flooding	0.60				
8284A:							
Tice	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Occasional flooding	0.60				
8331A:							
Haymond	90	Somewhat limited		Not limited		Not limited	
		Occasional flooding	0.60				
8333A:							
Wakeland	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Occasional flooding	0.60				
8334A:							
Birds	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Occasional flooding	0.60				
		Percs slowly	0.31				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
8420A:							
Piopolis------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00	Surface percs slowly	1.00	Surface percs slowly	1.00
		Occasional flooding	0.60				
		Too acid	0.44				
8422A:							
Cape----------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Droughty	0.01		
		Occasional flooding	0.60				
		Too acid	0.32				
8426A:							
Karnak--------	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00	Droughty	0.87		
		Occasional flooding	0.60				
		Too acid	0.44				
8427B:							
Burnside------	90	Somewhat limited		Very limited		Not limited	
		Too acid	0.92	Water erodibility	1.00		
		Occasional flooding	0.60				
8456B:							
Ware----------	85	Somewhat limited		Not limited		Not limited	
		Occasional flooding	0.60				
		Slope	0.08				
8475B:							
Elsah---------	85	Somewhat limited		Very limited		Not limited	
		Occasional flooding	0.60	Water erodibility	1.00		
				Droughty	0.39		
8589B:							
Bowdre--------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Droughty	1.00	Wetness	1.00
		Droughty	1.00	Depth to saturated zone	1.00		
		Percs slowly	1.00				
		Occasional flooding	0.60				
		Slope	0.08				

Table 16.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
8590A:							
Cairo----------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Droughty	1.00		
		Droughty	0.93				
		Occasional flooding	0.60				
8682B:							
Medway---------	85	Very limited		Not limited		Very limited	
		Depth to saturated zone	1.00			Wetness	1.00
		Occasional flooding	0.60				
		Slope	0.08				
8787A:							
Banlic---------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00	Droughty	0.86		
		Occasional flooding	0.60				
		Droughty	0.55				
MW:							
Miscellaneous water---------	100	Not rated		Not rated		Not rated	
W:							
Water----------	100	Not rated		Not rated		Not rated	

Table 17.—Engineering Index Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
75B, 75C:												
Drury	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	95-100	90-100	20-35	NP-15
	6-33	Silt loam	CL	A-4, A-6	0	0	100	95-100	95-100	90-100	25-35	8-15
	33-80	Silt loam, loam, very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	95-100	55-95	20-30	5-15
75C3:												
Drury	0-1	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	95-100	90-100	20-35	NP-15
	1-28	Silt loam	CL	A-4, A-6	0	0	100	95-100	95-100	90-100	25-35	8-15
	28-80	Silt loam, loam, very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	95-100	55-95	20-30	5-15
75D:												
Drury	0-6	Silt loam	CL, CL-ML, ML	A-6, A-4	0	0	100	95-100	95-100	90-100	20-35	NP-15
	6-33	Silt loam	CL	A-4, A-6	0	0	100	95-100	95-100	90-100	25-35	8-15
	33-80	Silt loam, loam, very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	95-100	55-95	20-30	5-15
79B:												
Menfro	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79C2:												
Menfro	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-59	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	59-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79C3:												
Menfro	0-5	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	5-57	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	57-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
79D2:												
Menfro----------	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-59	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	59-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79D3:												
Menfro----------	0-5	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	5-57	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	57-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79E:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79E2:												
Menfro----------	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-59	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	59-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79E3:												
Menfro----------	0-5	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	5-57	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	57-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79F:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
99G. Sandstone and limestone rock land												
164A, 164B:												
Stoy-----------	0-13	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	10-15
	13-32	Silty clay loam	CL	A-7	0	0	100	100	95-100	90-100	40-50	22-32
	32-45	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-50	15-25
	45-80	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	13-25

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
214B:												
Hosmer----------	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	7-28	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	28-67	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	67-80	Silt loam	CL, CL-ML, ML		0	0	100	100	90-100	70-95	15-25	3-10
214C2:												
Hosmer----------	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	4-25	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	25-64	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	64-80	Silt loam	CL, CL-ML, ML		0	0	100	100	90-100	70-95	15-25	3-10
214C3:												
Hosmer----------	0-2	Silt loam, silty clay loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	2-23	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	23-62	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	62-80	Silt loam	CL, CL-ML, ML		0	0	100	100	90-100	70-95	15-25	3-10
214D2:												
Hosmer----------	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	4-25	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	25-64	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	64-80	Silt loam	CL, CL-ML, ML		0	0	100	100	90-100	70-95	15-25	3-10

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
214D3:												
Hosmer----------	0-2	Silt loam, silty clay loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	2-23	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	23-62	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	62-80	Silt loam	CL, CL-ML, ML		0	0	100	100	90-100	70-95	15-25	3-10
477B:												
Winfield--------	0-9	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-25
	9-13	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	13-56	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	56-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
477C2:												
Winfield--------	0-6	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-25
	6-10	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	10-53	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	53-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
477C3:												
Winfield--------	0-4	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-25
	4-8	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	8-51	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	51-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
477D2:												
Winfield--------	0-6	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-25
	6-10	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	10-53	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	53-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
477D3:												
Winfield--------	0-4	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-25
	4-8	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	8-51	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	51-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
692D:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-1-b, A-2, A-4, A-6	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	>60	Unweathered bedrock			---	---	---	---	---	---	---	---
692D2:												
Menfro----------	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-100	20-30	5-15
	7-59	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20
	59-80	Silt loam, silt	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-100	15-25	NP-10
Wellston--------	0-5	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	5-28	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	28-40	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	40-57	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-1-b, A-2, A-4, A-6	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	>57	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
692F:												
Menfro----------	0-10	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-100	20-30	5-15
	10-62	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20
	62-80	Silt loam, silt	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-100	15-25	NP-10
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-1-b, A-2, A-4, A-6	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	>60	Unweathered bedrock			---	---	---	---	---	---	---	---
694D:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
Baxter----------	0-15	Gravelly silt loam	ML, GM, GC-GM, CL-ML	A-4	0	0-10	60-90	55-80	45-70	45-70	25-35	4-10
	15-22	Gravelly silty clay loam, gravelly silt loam	CL, CL-ML, GC, SC-SM	A-6, A-4	0	0-10	60-90	55-80	55-80	45-80	25-40	5-20
	22-43	Gravelly silty clay, gravelly clay	CH, CL, GC, SC	A-7	0	0-10	55-90	45-85	45-85	45-80	40-60	20-35
	43-80	Very gravelly clay, gravelly silty clay	CH, CL, GC, SC	A-7	0	0-20	50-90	40-75	35-70	35-70	45-70	20-40
694D2:												
Menfro----------	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-59	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	59-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
694D2:												
Baxter----------	0-12	Gravelly silt loam	ML, GM, GC-GM, CL-ML	A-4	0	0-10	60-90	55-80	45-70	45-70	25-35	4-10
	12-19	Gravelly silty clay loam, gravelly silt loam	CL, CL-ML, GC, SC-SM	A-6, A-4	0	0-10	60-90	55-80	55-80	45-80	25-40	5-20
	19-40	Gravelly silty clay, gravelly clay	CH, CL, GC, SC	A-7	0	0-10	55-90	45-85	45-85	45-80	40-60	20-35
	40-80	Very gravelly clay, gravelly silty clay	CH, CL, GC, SC	A-7	0	0-20	50-90	40-75	35-70	35-70	45-70	20-40
694F:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
Baxter----------	0-15	Gravelly silt loam	ML, GM, GC-GM, CL-ML	A-4	0	0-10	60-90	55-80	45-70	45-70	25-35	4-10
	15-22	Gravelly silty clay loam, gravelly silt loam	CL, CL-ML, GC, SC-SM	A-6, A-4	0	0-10	60-90	55-80	55-80	45-80	25-40	5-20
	22-43	Gravelly silty clay, gravelly clay	CH, CL, GC, SC	A-7	0	0-10	55-90	45-85	45-85	45-80	40-60	20-35
	43-80	Very gravelly clay, gravelly silty clay	CH, CL, GC, SC	A-7	0	0-20	50-90	40-75	35-70	35-70	45-70	20-40
801B:												
Orthents--------	0-80	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4, A-7	0	0	100	100	90-100	80-95	25-45	5-25
802D:												
Orthents--------	0-6	Loam, silt loam, clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20
	6-80	Loam, silt loam, very fine sandy loam	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
832F:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
Clarksville-----	0-16	Gravelly silt loam	GC, GC-GM, SC, SC-SM	A-4, A-6	0-10	5-20	65-95	60-85	55-80	40-50	20-35	5-15
	16-26	Very gravelly silt loam, very gravelly silty clay loam, very gravelly silty clay, extremely gravelly silty clay loam	GC, SC, SP-SC	A-2-6, A-6	0-10	5-20	30-70	10-60	10-50	5-45	30-40	15-25
	26-80	Very gravelly silty clay, very gravelly clay, extremely gravelly silty clay	GC, SC	A-2-7, A-7	0-20	5-20	30-70	20-60	10-50	10-45	55-75	35-55
832G:												
Clarksville-----	0-16	Gravelly silt loam	GC, GC-GM, SC, SC-SM	A-4, A-6	0-10	5-20	65-95	60-85	55-80	40-50	20-35	5-15
	16-26	Very gravelly silt loam, very gravelly silty clay loam, very gravelly silty clay, extremely gravelly silty clay loam	GC, SC, SP-SC	A-2-6, A-6	0-10	5-20	30-70	10-60	10-50	5-45	30-40	15-25
	26-80	Very gravelly silty clay, very gravelly clay, extremely gravelly silty clay	GC, SC	A-2-7, A-7	0-20	5-20	30-70	20-60	10-50	10-45	55-75	35-55

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
832G:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
833F:												
Menfro----------	0-10	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-100	20-30	5-15
	10-62	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20
	62-80	Silt loam, silt	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-100	15-25	NP-10
Goss------------	0-7	Gravelly silt loam	CL, CL-ML, ML	A-4	0	0-10	65-85	65-75	65-75	65-75	20-30	2-10
	7-22	Very gravelly clay loam, very gravelly silt loam, gravelly silty clay loam	GC, GC-GM, GM	A-2	0-5	5-40	40-60	35-55	30-50	25-35	20-30	2-10
	22-80	Very cobbly clay, gravelly silty clay, very cobbly silty clay	GC, SC	A-2-7, A-7	0-5	5-45	45-70	20-65	20-50	20-45	50-70	30-40
833G:												
Goss------------	0-7	Gravelly silt loam	CL, CL-ML, ML	A-4	0	0-10	65-85	65-75	65-75	65-75	20-30	2-10
	7-22	Very gravelly clay loam, very gravelly silt loam, gravelly silty clay loam	GC, GC-GM, GM	A-2	0-5	5-40	40-60	35-55	30-50	25-35	20-30	2-10
	22-80	Very cobbly clay, gravelly silty clay, very cobbly silty clay	GC, SC	A-2-7, A-7	0-5	5-45	45-70	20-65	20-50	20-45	50-70	30-40
Menfro----------	0-10	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-100	20-30	5-15
	10-62	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	80-100	30-40	10-20
	62-80	Silt loam, silt	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-100	15-25	NP-10

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
834F, 834G:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-1-b, A-2, A-4, A-6	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	>60	Unweathered bedrock			---	---	---	---	---	---	---	---
Westmore--------	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	100	90-100	80-100	70-95	22-35	4-10
	6-22	Silty clay loam, silt loam	CL, ML	A-6, A-7	---	0-5	95-100	90-100	85-100	80-90	30-50	11-20
	22-62	Gravelly silty clay loam, silty clay, clay, channery silty clay loam	CH, CL	A-6, A-7	---	0-15	80-100	65-95	60-90	55-90	38-70	18-40
	>62	Bedrock			---	---	---	---	---	---	---	---
864.												
Pits												

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
940D:												
Zanesville------	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-100	25-40	4-15
	7-22	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	80-100	25-40	5-20
	22-42	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-3	90-100	85-100	80-100	60-100	20-40	2-20
	42-60	Very channery silty clay, channery silt loam, very channery silt loam, clay loam, channery sandy clay loam	CL, GM, SC, SM	A-6, A-4, A-2, A-1-b	0	0-10	65-100	50-100	40-100	20-85	20-40	2-20
	>60	Weathered bedrock, unweathered bedrock			---	---	---	---	---	---	---	---
Westmore--------	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	100	90-100	80-100	70-95	22-35	4-10
	6-22	Silty clay loam, silt loam	CL, ML	A-6, A-7	---	0-5	95-100	90-100	85-100	80-90	30-50	11-20
	22-62	Gravelly silty clay loam, silty clay, clay, channery silty clay loam	CH, CL	A-6, A-7	---	0-15	80-100	65-95	60-90	55-90	38-70	18-40
	>62	Bedrock			---	---	---	---	---	---	---	---

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
940D2:												
Zanesville------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-100	25-40	4-15
	4-19	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	80-100	25-40	5-20
	19-39	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-3	90-100	85-100	80-100	60-100	20-40	2-20
	39-57	Very channery silty clay, channery silt loam, very channery silt loam, clay loam, channery sandy clay loam	CL, GM, SC, SM	A-6, A-4, A-2, A-1-b	0	0-10	65-100	50-100	40-100	20-85	20-40	2-20
	>57	Weathered bedrock, unweathered bedrock			---	---	---	---	---	---	---	---
Westmore--------	0-3	Silt loam	CL, CL-ML, ML	A-4	0	0	100	90-100	80-100	70-95	22-35	4-10
	3-19	Silty clay loam, silt loam	CL, ML	A-6, A-7	---	0-5	95-100	90-100	85-100	80-90	30-50	11-20
	19-59	Gravelly silty clay loam, silty clay, clay, channery silty clay loam	CH, CL	A-6, A-7	---	0-15	80-100	65-95	60-90	55-90	38-70	18-40
	>59	Bedrock			---	---	---	---	---	---	---	---

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
977F:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-1-b, A-2, A-4, A-6	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	>60	Unweathered bedrock			---	---	---	---	---	---	---	---
Neotoma---------	0-10	Flaggy silt loam, flaggy sandy clay loam	GC, GM, ML, SM	A-4	0	10-30	55-80	50-75	40-70	40-65	22-35	3-10
	10-26	Very flaggy silt loam, flaggy loam, extremely flaggy silt loam	GM, ML, SM	A-4	0	10-50	50-80	50-80	45-70	40-60	25-40	3-10
	26-65	Very channery loam, extremely flaggy sandy clay loam, channery silt loam, extremely flaggy sandy loam	GM	A-2, A-4	0	40-85	40-65	35-60	30-50	25-45	15-35	NP-8
	>65	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
977G:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-1-b, A-2, A-4, A-6	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	>60	Unweathered bedrock			---	---	---	---	---	---	---	---
Neotoma---------	0-10	Flaggy silt loam, flaggy sandy clay loam	GC, GM, ML, SM	A-4	0	10-30	55-80	50-75	40-70	40-65	22-35	3-10
	10-26	Very flaggy silt loam, flaggy loam, extremely flaggy silt loam	GM, ML, SM	A-4	0	10-50	50-80	50-80	45-70	40-60	25-40	3-10
	26-65	Very channery loam, extremely flaggy sandy clay loam, channery silt loam, extremely flaggy sandy loam	GM	A-2, A-4	0	40-85	40-65	35-60	30-50	25-45	15-35	NP-8
	>65	Unweathered bedrock			---	---	---	---	---	---	---	---
1334A:												
Birds-----------	0-8	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
	8-80	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
1426A:												
Karnak----------	0-5	Silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	45-80	25-45
	5-50	Silty clay, clay	CH, CL, MH, ML	A-7	0	0	100	100	95-100	95-100	45-80	20-40
	50-80	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	45-80	25-45
3071A, 3071L:												
Darwin----------	0-10	Silty clay	CH, CL	A-7	0	0	100	100	100	90-100	45-85	25-55
	10-62	Silty clay, clay	CH, CL	A-7	0	0	100	100	100	85-100	45-85	25-55
	62-80	Silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	100	100	95-100	90-100	35-70	20-45
3092BL:												
Sarpy-----------	0-9	Loamy fine sand	SM	A-2-4	0	0	100	100	60-80	15-35	0-14	NP
	9-80	Fine sand, loamy fine sand, sand	SM, SP, SP-SM	A-2-4, A-3	0	0	100	100	60-80	2-35	0-14	NP
3162L:												
Gorham----------	0-14	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-50	15-25
	14-36	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	100	100	90-95	40-55	15-30
	36-47	Clay loam, sandy clay loam, loam	CL	A-6, A-7	0	0	100	80-90	70-80	50-80	30-45	10-20
	47-80	Sand, loamy sand, sandy loam	SC, SC-SM, SM, SP-SM	A-2, A-4	0	0	100	75-90	55-80	10-50	15-30	NP-10
3180A:												
Dupo------------	0-9	Silt loam	CL, CL-ML	A-4	0	0	100	100	100	95-100	20-30	5-10
	9-25	Silt loam	CL, CL-ML	A-4	0	0	100	100	100	95-100	20-30	5-10
	25-80	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	100	98-100	50-70	30-45
3288A:												
Petrolia--------	0-8	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	80-100	35-45	15-22
	8-55	Silty clay loam	CL	A-7, A-6	0	0	100	95-100	90-100	85-100	35-45	15-22
	55-80	Silty clay loam, silt loam	CL	A-4, A-6, A-7	0	0	100	95-100	80-100	60-100	20-45	8-22

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
3331A:												
Haymond---------	0-20	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	85-100	20-30	3-10
	20-60	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	3-10
	60-80	Fine sandy loam, loam, silt loam	CL, ML, SC, SM	A-4, A-6	0	0	95-100	90-100	65-100	35-90	15-35	2-15
3333A:												
Wakeland--------	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	8-68	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	68-80	Silt loam, loam	ML, CL, CL-ML	A-4	0	0	100	100	85-100	60-100	16-28	3-9
3334A:												
Birds-----------	0-8	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
	8-80	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
3426A:												
Karnak----------	0-5	Silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	45-80	25-45
	5-50	Silty clay, clay	CH, CL, MH, ML	A-7	0	0	100	100	95-100	95-100	45-80	20-40
	50-80	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	45-80	25-45

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
3456B:												
Ware------------	0-14	Stratified very fine sandy loam to loamy fine sand, very fine sandy loam, loamy fine sand	SC-SM, SM	A-4	0	0	100	100	95-100	35-50	15-25	NP-5
	14-21	Very fine sandy loam, stratified silty clay loam to silt loam	CL, CL-ML, ML	A-4	0	0	100	100	95-100	50-70	20-30	2-10
	21-60	Very fine sandy loam, loamy fine sand, stratified very fine sandy loam to loamy fine sand	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	100	60-90	10-60	15-25	NP-6
3590L:												
Cairo-----------	0-17	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	51-80	31-55
	17-30	Silty clay, clay	CH	A-7	0	0	100	100	90-100	75-100	51-80	31-55
	30-80	Sandy loam, loamy fine sand, fine sand	SC, SC-SM, SM	A-2, A-4	0	0	100	65-100	50-80	15-45	15-30	NP-10
3682BL:												
Medway----------	0-9	Stratified silty clay loam to silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	30-45	10-20
	9-25	Silty clay loam, silt loam, loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	80-95	75-90	70-90	20-45	4-20
	25-36	Very fine sandy loam, loam	CL, ML, SC-SM, SM	A-2, A-4, A-6	0	0	90-100	75-100	45-95	25-75	15-30	NP-15
	36-60	Stratified sandy loam to silty clay loam	CL, ML, SC, SM	A-1-b, A-2, A-4, A-6	0	0-5	85-100	65-100	30-95	15-75	15-30	NP-15

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
5079B2:												
Menfro----------	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-59	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	59-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
5079C3, 5079D3, 5079E3:												
Menfro---------	0-5	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	5-57	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	57-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
5214B2:												
Hosmer----------	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	4-25	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	25-64	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	64-80	Silt loam	CL, CL-ML, ML		0	0	100	100	90-100	70-95	15-25	3-10
5214C3, 5214D3:												
Hosmer----------	0-2	Silt loam, silty clay loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	2-23	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	23-62	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	62-80	Silt loam	CL, CL-ML, ML		0	0	100	100	90-100	70-95	15-25	3-10
8071A:												
Darwin----------	0-10	Silty clay	CH, CL	A-7	0	0	100	100	100	90-100	45-85	25-55
	10-62	Silty clay, clay	CH, CL	A-7	0	0	100	100	100	85-100	45-85	25-55
	62-80	Silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	100	100	95-100	90-100	35-70	20-45

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
8085A:												
Jacob-----------	0-4	Silty clay	CH, MH	A-7	0	0	100	100	100	95-100	60-85	33-45
	4-50	Clay, silty clay	MH	A-7	0	0	100	100	100	95-100	65-85	30-45
	50-80	Clay	MH	A-7	0	0	100	100	100	95-100	60-85	33-45
8092B:												
Sarpy-----------	0-9	Loamy fine sand	SM	A-2-4	0	0	100	100	60-80	15-35	0-14	NP
	9-80	Fine sand, loamy fine sand, sand	SM, SP, SP-SM	A-2-4, A-3	0	0	100	100	60-80	2-35	0-14	NP
8162A:												
Gorham----------	0-14	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-50	15-25
	14-36	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	100	100	90-95	40-55	15-30
	36-47	Clay loam, sandy clay loam, loam	CL	A-6, A-7	0	0	100	80-90	70-80	50-80	30-45	10-20
	47-80	Sand, loamy sand, sandy loam	SC, SC-SM, SM, SP-SM	A-2, A-4	0	0	100	75-90	55-80	10-50	15-30	NP-10
8180A:												
Dupo------------	0-9	Silt loam	CL, CL-ML	A-4	0	0	100	100	100	95-100	20-30	5-10
	9-25	Silt loam	CL, CL-ML	A-4	0	0	100	100	100	95-100	20-30	5-10
	25-80	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	100	98-100	50-70	30-45
8284A:												
Tice------------	0-24	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	30-45	10-20
	24-47	Silty clay loam, silt loam	CH, CL	A-7	0	0	100	100	95-100	85-95	40-55	15-30
	47-80	Stratified loam to silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	60-95	55-80	25-45	5-20
8331A:												
Haymond---------	0-20	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	85-100	20-30	3-10
	20-60	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	3-10
	60-80	Fine sandy loam, loam, silt loam	CL, ML, SC, SM	A-4, A-6	0	0	95-100	90-100	65-100	35-90	15-35	2-15

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
8333A:												
Wakeland--------	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	8-68	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	68-80	Silt loam, loam	ML, CL, CL-ML	A-4	0	0	100	100	85-100	60-100	16-28	3-9
8334A:												
Birds-----------	0-8	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
	8-80	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
8420A:												
Piopolis--------	0-7	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	35-50	15-25
	7-37	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-95	35-50	15-25
	37-80	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	35-50	15-25
8422A:												
Cape------------	0-22	Silty clay loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-50	20-30
	22-45	Silty clay, clay	CH	A-7	0	0	100	100	100	95-100	50-70	30-45
	45-80	Silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	100	100	100	90-100	35-65	20-35
8426A:												
Karnak----------	0-5	Silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	45-80	25-45
	5-50	Silty clay, clay	CH, CL, MH, ML	A-7	0	0	100	100	95-100	95-100	45-80	20-40
	50-80	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	45-80	25-45
8427B:												
Burnside--------	0-17	Silt loam	CL-ML, CL, ML	A-4	0-2	0-10	100	100	80-95	75-95	20-35	2-10
	17-57	Very flaggy loam, extremely flaggy sandy loam, extremely flaggy silt loam	GC-GM, GC, GM, SC, SM	A-2, A-4	0-5	10-60	35-80	35-60	35-43	27-36	0-20	NP-10
	>57	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
8456B:												
Ware------------	0-14	Loam, fine sandy loam	SC-SM, SM	A-4	0	0	100	100	95-100	35-50	15-25	NP-5
	14-21	Very fine sandy loam, stratified silty clay loam to silt loam	CL, CL-ML, ML	A-4	0	0	100	100	95-100	50-70	20-30	2-10
	21-60	Very fine sandy loam, loamy fine sand, stratified very fine sandy loam to loamy fine sand	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	100	60-90	10-60	15-25	NP-6
8475B:												
Elsah-----------	0-10	Silt loam	CL, CL-ML, SC-SM	A-4, A-6	0-1	0-5	95-100	90-100	85-100	80-100	20-35	5-15
	10-32	Very gravelly silt loam, very gravelly loam	GC, CL, ML, SC, SM	A-4, A-6	0-5	10-30	50-90	35-70	35-65	35-60	15-30	3-15
	32-80	Very gravelly loam, gravelly loam, extremely gravelly loam	GC, CL, ML, SC, SM	A-4, A-6, A-2-4, A-2-6	0-10	10-65	45-85	30-70	25-65	20-60	0-25	NP-15
8589B:												
Bowdre----------	0-11	Silty clay	CH	A-7	0	0	100	100	95-100	90-95	51-65	28-40
	11-17	Silty clay, clay, silty clay loam	CH	A-7	0	0	100	100	95-100	90-95	51-65	28-40
	17-23	Silt loam, loam	CL, CL-ML, SC-SM	A-4	0	0	100	100	90-100	70-90	25-35	3-12
	23-60	Very fine sandy loam, sandy loam, silt loam, loam	ML, CL-ML, SC-SM	A-4, A-2	0	0	100	100	80-100	30-90	10-20	1-5

Table 17.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
8590A:												
Cairo-----------	0-17	Silty clay	CH	A-7	0	0	100	100	95-100	90-100	51-80	31-55
	17-30	Silty clay, clay	CH	A-7	0	0	100	100	90-100	75-100	51-80	31-55
	30-80	Sandy loam, loamy fine sand, fine sand	SC, SC-SM, SM	A-2, A-4	0	0	100	65-100	50-80	15-45	15-30	NP-10
8682B:												
Medway----------	0-9	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	30-45	10-20
	9-25	Silty clay loam, silt loam, loam	CL, CL-ML	A-4, A-6, A-7	0	0	95-100	80-95	75-90	70-90	20-45	4-20
	25-36	Very fine sandy loam, loam	CL, ML, SC-SM, SM	A-2, A-4, A-6	0	0	90-100	75-100	45-95	25-75	15-30	NP-15
	36-60	Stratified sandy loam to silty clay loam	CL, ML, SC, SM	A-4, A-6, A-1-b, A-2	0	0-5	85-100	65-100	30-95	15-75	15-30	NP-15
8787A:												
Banlic----------	0-8	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	85-95	20-30	5-10
	8-21	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	85-95	20-30	5-10
	21-55	Silt loam, silt	CL, CL-ML	A-4	0	0	100	100	90-100	85-95	20-30	5-10
	55-80	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	85-95	20-30	5-10
MW. Miscellaneous water												
W. Water												

Table 18.—Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
75B, 75C:														
Drury-------------	0-6	0-10	65-80	10-20	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	6-33	0-10	65-80	18-20	1.25-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
	33-80	3-50	35-77	15-20	1.30-1.50	0.6-2	0.12-0.21	0.0-2.9	0.0-0.2	.49	.49			
75C3:														
Drury-------------	0-1	0-10	65-80	10-20	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	0.5-1.0	.43	.43	4	5	56
	1-28	0-10	65-80	18-20	1.25-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
	28-80	3-50	35-77	15-20	1.30-1.50	0.6-2	0.12-0.21	0.0-2.9	0.0-0.2	.49	.49			
75D:														
Drury-------------	0-6	0-10	65-80	10-20	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	6-33	0-10	65-80	18-20	1.25-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
	33-80	3-50	35-77	15-20	1.30-1.50	0.6-2	0.12-0.21	0.0-2.9	0.0-0.2	.49	.49			
79B:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
79C2:														
Menfro------------	0-7	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
79C3:														
Menfro------------	0-5	0-5	65-85	12-35	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	4	6	48
	5-57	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	57-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
79D2:														
Menfro------------	0-7	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
79D3:														
Menfro------------	0-5	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	4	6	48
	5-57	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	57-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
79E:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
79E2:														
Menfro------------	0-7	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
79E3:														
Menfro------------	0-5	0-5	65-85	12-35	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	4	6	48
	5-57	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	57-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
79F:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
99G. Sandstone and limestone rock land														
164A, 164B:														
Stoy--------------	0-13	0-5	65-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	13-32	0-5	55-73	27-35	1.35-1.55	0.06-0.2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	32-45	0-5	55-73	27-35	1.30-1.60	0.06-0.2	0.09-0.12	3.0-5.9	0.2-0.5	.37	.37			
	45-80	0-10	65-80	20-27	1.40-1.75	0.06-0.2	0.10-0.15	0.0-2.9	0.2-0.5	.43	.43			
214B:														
Hosmer------------	0-7	0-5	65-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	7-28	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	28-67	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	67-80	0-10	65-85	15-27	1.50-1.70	0.6-2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
214C2:														
Hosmer------------	0-4	0-5	65-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	4-25	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	25-64	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	64-80	0-10	65-85	15-27	1.50-1.70	0.6-2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
214C3:														
Hosmer------------	0-2	0-5	65-88	12-33	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	3	6	48
	2-23	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	23-62	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	62-80	0-10	65-85	15-27	1.50-1.70	0.6-2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
214D2:														
Hosmer------------	0-4	0-5	65-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	4-25	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	25-64	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	64-80	0-10	65-85	15-27	1.50-1.70	0.6-2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
214D3:														
Hosmer------------	0-2	0-5	65-88	12-33	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	3	6	48
	2-23	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	23-62	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	62-80	0-10	65-85	15-27	1.50-1.70	0.6-2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
477B:														
Winfield----------	0-9	0-5	65-85	12-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	9-13	0-5	65-78	22-30	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.5-1.0	.37	.37			
	13-56	0-5	65-76	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	56-80	0-10	65-85	8-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
477C2:														
Winfield----------	0-6	0-5	65-85	12-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	6-10	0-5	65-78	22-30	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.5-1.0	.37	.37			
	10-53	0-5	65-76	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	53-80	0-10	65-85	8-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
477C3:														
Winfield----------	0-4	0-5	65-85	12-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.37	.37	4	6	48
	4-8	0-5	65-78	22-30	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-0.8	.37	.37			
	8-51	0-5	65-76	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	51-80	0-10	65-85	8-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
477D2:														
Winfield----------	0-6	0-5	65-85	12-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	6-10	0-5	65-78	22-30	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.5-1.0	.37	.37			
	10-53	0-5	65-76	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	53-80	0-10	65-85	8-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
477D3:														
Winfield----------	0-4	0-5	65-85	12-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.37	.37	4	6	48
	4-8	0-5	65-78	22-30	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.5-1.0	.37	.37			
	8-51	0-5	65-76	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	51-80	0-10	65-85	8-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
692D:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
Wellston----------	0-8	0-25	50-87	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	0-25	45-82	18-35	1.30-1.65	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.43	.43			
	31-43	0-40	30-70	15-30	1.30-1.60	0.6-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.16	0.0-2.9	0.0-0.1	.20	.43			
	>60	---	---	---	---	0.2-2	---	---	---	---	---			
692D2:														
Menfro------------	0-7	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.55	.55			
Wellston----------	0-5	0-25	50-87	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	5-28	0-25	45-82	18-35	1.30-1.65	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.43	.43			
	28-40	0-40	30-70	15-30	1.30-1.60	0.6-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37			
	40-57	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.16	0.0-2.9	0.0-0.1	.20	.43			
	>57	---	---	---	---	0.2-2	---	---	---	---	---			
692F:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.55	.55			
Wellston----------	0-8	0-25	50-87	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	0-25	45-82	18-35	1.30-1.65	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.43	.43			
	31-43	0-40	30-70	15-30	1.30-1.60	0.6-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.16	0.0-2.9	0.0-0.1	.20	.43			
	>60	---	---	---	---	0.2-2	---	---	---	---	---			
694D:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
694D:														
Baxter------------	0-15	0-38	50-82	12-27	1.20-1.40	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.24	.28	5	5	56
	15-22	0-42	40-70	18-40	1.30-1.55	0.6-2	0.14-0.18	3.0-5.9	0.1-1.0	.28	.32			
	22-43	0-20	20-60	40-60	1.30-1.55	0.6-2	0.10-0.14	3.0-5.9	0.0-0.5	.15	.17			
	43-80	0-20	20-60	40-60	1.35-1.65	0.6-2	0.08-0.13	3.0-5.9	0.0-0.1	.15	.17			
694D2:														
Menfro------------	0-7	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
Baxter------------	0-12	0-38	50-82	12-27	1.20-1.40	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.24	.28	5	5	56
	12-19	0-42	40-70	18-40	1.30-1.55	0.6-2	0.14-0.18	3.0-5.9	0.1-1.0	.28	.32			
	19-40	0-20	20-60	40-60	1.30-1.55	0.6-2	0.10-0.14	3.0-5.9	0.0-0.5	.15	.17			
	40-80	0-20	20-60	40-60	1.35-1.65	0.6-2	0.08-0.13	3.0-5.9	0.0-0.1	.15	.17			
694F:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
Baxter------------	0-15	0-38	50-82	12-27	1.20-1.40	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.24	.28	5	5	56
	15-22	0-42	40-70	18-40	1.30-1.55	0.6-2	0.14-0.18	3.0-5.9	0.1-1.0	.28	.32			
	22-43	0-20	20-60	40-60	1.30-1.55	0.6-2	0.10-0.14	3.0-5.9	0.0-0.5	.15	.17			
	43-80	0-20	20-60	40-60	1.35-1.65	0.6-2	0.08-0.13	3.0-5.9	0.0-0.1	.15	.17			
801B:														
Orthents----------	0-80	5-44	51-80	5-35	1.70-1.80	0.2-2	0.18-0.22	3.0-5.9	0.0-1.0	.43	.43	5	6	48
802D:														
Orthents----------	0-6	5-50	30-80	18-40	1.70-1.75	0.2-0.6	0.18-0.22	3.0-5.9	0.1-1.0	.43	.32	5	6	48
	6-80	5-67	15-80	18-30	1.70-1.90	0.2-0.6	0.16-0.20	3.0-5.9	0.0-1.0	.43	.32			
832F:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
Clarksville-------	0-16	0-50	50-80	0-25	1.20-1.40	2-6	0.12-0.17	0.0-2.9	0.5-2.0	.28	.37	3	8	0
	16-26	5-30	30-75	25-41	1.30-1.45	2-6	0.06-0.10	0.0-2.9	0.2-0.5	.32	.43			
	26-80	5-40	15-60	25-75	1.20-1.40	0.6-2	0.05-0.08	3.0-5.9	0.1-0.4	.20	.28			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
832G:														
Clarksville-------	0-16	0-50	50-80	0-25	1.20-1.40	2-6	0.12-0.17	0.0-2.9	0.5-2.0	.28	.37	3	8	0
	16-26	5-30	30-75	25-35	1.30-1.45	2-6	0.06-0.10	0.0-2.9	0.2-0.5	.32	.43			
	26-80	5-40	15-60	25-75	1.20-1.40	0.6-2	0.05-0.08	3.0-5.9	0.1-0.4	.20	.28			
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
833F:														
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.55	.55			
Goss--------------	0-7	0-40	50-90	10-27	1.10-1.30	2-6	0.06-0.10	0.0-2.9	0.5-2.0	.28	.32	2	8	0
	7-22	5-50	30-80	10-40	1.10-1.30	2-6	0.06-0.10	0.0-2.9	0.0-0.1	.20	.24			
	22-80	5-40	15-60	35-80	1.30-1.50	0.6-2	0.04-0.09	3.0-5.9	0.0-0.5	.15	.17			
833G:														
Goss--------------	0-7	0-40	50-90	10-27	1.10-1.30	2-6	0.06-0.10	0.0-2.9	0.5-2.0	.28	.32	2	8	0
	7-22	5-50	30-80	10-40	1.10-1.30	2-6	0.06-0.10	0.0-2.9	0.0-0.1	.20	.24			
	22-80	5-40	15-60	35-80	1.30-1.50	0.6-2	0.04-0.09	3.0-5.9	0.0-0.5	.15	.17			
Menfro------------	0-10	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.55	.55			
834F, 834G:														
Wellston----------	0-8	0-25	50-87	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	0-25	45-82	18-35	1.30-1.65	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.43	.43			
	31-43	0-40	30-70	15-30	1.30-1.60	0.6-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.16	0.0-2.9	0.0-0.1	.20	.43			
	>60	---	---	---	---	0.2-2	---	---	---	---	---			
Westmore----------	0-6	0-5	50-85	15-27	1.35-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	6	48
	6-22	0-5	50-75	25-35	1.40-1.60	0.6-2	0.17-0.21	3.0-5.9	0.5-1.0	.37	.37			
	22-62	0-20	35-65	35-60	1.40-1.70	0.06-0.6	0.10-0.14	6.0-8.9	0.2-0.5	.32	.37			
	>62	---	---	---	---	0.2-2	---	---	---	---	---			
864.														
Pits														

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
940D:														
Zanesville--------	0-7	0-5	50-88	12-27	1.35-1.40	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	7-22	0-22	60-85	15-35	1.35-1.45	0.6-2	0.17-0.22	0.0-2.9	0.5-2.0	.37	.37			
	22-42	5-32	50-77	18-33	1.50-1.75	0.06-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37	.43			
	42-60	5-70	10-70	20-45	1.50-1.70	0.2-2	0.08-0.12	0.0-2.9	0.0-0.5	.28	.32			
	>60	---	---	---	---	0.01-0.2	---	---	---	---	---			
Westmore----------	0-6	0-5	50-85	15-27	1.35-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	6	48
	6-22	0-5	50-75	25-35	1.40-1.60	0.6-2	0.17-0.21	3.0-5.9	0.5-1.0	.37	.37			
	22-62	0-20	35-65	35-60	1.40-1.70	0.06-0.6	0.10-0.14	6.0-8.9	0.2-0.5	.32	.37			
	>62	---	---	---	---	0.02-2	---	---	---	---	---			
940D2:														
Zanesville--------	0-4	0-5	50-88	12-27	1.35-1.40	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	4-19	0-22	60-85	15-35	1.35-1.45	0.6-2	0.17-0.22	0.0-2.9	0.5-2.0	.37	.37			
	19-39	5-32	50-77	18-33	1.50-1.75	0.06-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37	.43			
	39-57	5-70	10-70	20-45	1.50-1.70	0.2-2	0.08-0.12	0.0-2.9	0.0-0.5	.28	.32			
	>57	---	---	---	---	0.01-0.2	---	---	---	---	---			
Westmore----------	0-3	0-5	50-85	15-27	1.35-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	6	48
	3-19	0-5	50-75	25-35	1.40-1.60	0.6-2	0.17-0.21	3.0-5.9	0.5-1.0	.37	.37			
	19-59	0-20	35-65	35-60	1.40-1.70	0.06-0.6	0.10-0.14	6.0-8.9	0.2-0.5	.32	.37			
	>59	---	---	---	---	0.02-2	---	---	---	---	---			
977F:														
Wellston----------	0-8	0-25	50-87	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	0-25	45-82	18-35	1.30-1.65	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.43	.43			
	31-43	0-40	30-70	15-30	1.30-1.60	0.6-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.16	0.0-2.9	0.0-0.1	.20	.43			
	>60	---	---	---	---	0.2-2	---	---	---	---	---			
Neotoma-----------	0-10	5-50	50-80	6-27	1.20-1.45	0.6-6	0.10-0.20	0.0-2.9	3.0-6.0	.20	.43	4	8	0
	10-26	5-50	28-80	10-27	1.30-1.60	0.6-6	0.09-0.16	0.0-2.9	0.0-0.5	.20	.55			
	26-65	15-67	28-80	5-27	1.25-1.50	2-6	0.02-0.09	0.0-2.9	0.0-0.2	.20	.64			
	>65	---	---	---	---	0.02-2	---	---	---	---	---			
977G:														
Wellston----------	0-8	0-25	50-87	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	0-25	45-82	18-35	1.30-1.65	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.43	.43			
	31-43	0-40	30-70	15-30	1.30-1.60	0.6-2	0.12-0.17	0.0-2.9	0.0-0.5	.37	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.16	0.0-2.9	0.0-0.1	.20	.43			
	>60	---	---	---	---	0.2-2	---	---	---	---	---			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
977G:														
Neotoma	0-10	5-50	50-80	6-27	1.20-1.45	0.6-6	0.10-0.20	0.0-2.9	3.0-6.0	.20	.43	4	8	0
	10-26	5-50	28-80	10-27	1.30-1.60	0.6-6	0.09-0.16	0.0-2.9	0.0-0.5	.20	.55			
	26-65	15-67	28-80	5-27	1.25-1.50	2-6	0.02-0.09	0.0-2.9	0.0-0.2	.20	.64			
	>65	---	---	---	---	0.02-2	---	---	---	---	---			
1334A:														
Birds	0-8	0-15	60-75	15-25	1.30-1.50	0.2-0.6	0.21-0.25	0.0-2.9	1.0-3.0	.43	.43	5	6	56
	8-80	3-25	55-70	18-27	1.40-1.60	0.2-0.6	0.20-0.22	0.0-2.9	0.0-2.0	.49	.49			
1426A:														
Karnak	0-5	0-5	25-60	40-65	1.20-1.40	0.06-0.2	0.11-0.14	6.0-8.9	2.0-3.0	.24	.24	5	4	86
	5-50	0-5	25-60	40-65	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.0-0.5	.28	.28			
	50-80	0-5	40-60	35-60	1.35-1.55	0.06-0.2	0.10-0.18	6.0-8.9	0.0-0.5	.28	.28			
3071A, 3071L:														
Darwin	0-10	0-10	35-55	40-45	1.20-1.40	0.01-0.06	0.11-0.14	9.0-25.0	4.0-5.0	.24	.24	5	4	86
	10-62	0-10	35-55	45-60	1.30-1.50	0.01-0.06	0.11-0.14	9.0-25.0	0.0-2.0	.24	.24			
	62-80	0-10	35-70	30-55	1.40-1.60	0.06-0.2	0.10-0.20	6.0-8.9	0.0-0.5	.24	.24			
3092BL:														
Sarpy	0-9	80-90	5-15	0-5	1.20-1.50	6-20	0.05-0.09	0.0-2.9	0.5-1.0	.02	.02	5	2	134
	9-80	80-95	5-15	0-5	1.20-1.50	6-20	0.05-0.09	0.0-2.9	0.0-0.5	.02	.02			
3162L:														
Gorham	0-14	2-15	45-60	27-38	1.30-1.50	0.2-0.6	0.13-0.20	3.0-5.9	4.0-5.0	.28	.28	4	4	86
	14-36	2-15	45-60	27-38	1.35-1.55	0.2-0.6	0.11-0.18	3.0-5.9	0.2-1.0	.28	.28			
	36-47	25-58	20-40	22-35	1.40-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.32	.32			
	47-80	67-93	2-18	0-15	1.50-1.75	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.24	.24			
3180A:														
Dupo	0-9	0-10	75-90	10-18	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	9-25	0-10	75-90	10-18	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
	25-80	0-7	30-60	30-60	1.35-1.60	0.06-0.2	0.08-0.19	6.0-8.9	0.2-1.0	.32	.32			
3288A:														
Petrolia	0-8	0-19	40-70	27-35	1.20-1.40	0.2-0.6	0.21-0.23	3.0-5.9	2.0-3.0	.32	.32	5	7	38
	8-55	0-19	40-70	27-35	1.35-1.45	0.2-0.6	0.18-0.20	3.0-5.9	0.2-1.0	.32	.32			
	55-80	0-40	40-80	15-35	1.40-1.60	0.2-0.6	0.18-0.20	3.0-5.9	0.2-1.0	.32	.32			
3331A:														
Haymond	0-20	1-35	45-85	10-20	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	20-60	1-35	45-85	10-18	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	0.5-2.0	.49	.49			
	60-80	1-65	5-80	2-26	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
3333A:														
Wakeland----------	0-8	1-14	65-85	10-18	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	8-68	1-14	65-85	10-18	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			
	68-80	3-41	49-85	10-18	1.35-1.55	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
3334A:														
Birds-------------	0-8	0-15	60-75	15-25	1.30-1.50	0.2-0.6	0.21-0.25	0.0-2.9	1.0-3.0	.43	.43	5	6	56
	8-80	3-25	55-70	18-27	1.40-1.60	0.2-0.6	0.20-0.22	0.0-2.9	0.0-2.0	.49	.49			
3426A:														
Karnak------------	0-5	0-5	25-60	40-65	1.20-1.40	0.06-0.2	0.11-0.14	6.0-8.9	2.0-3.0	.24	.24	5	4	86
	5-50	0-5	25-60	40-65	1.30-1.50	0.01-0.2	0.09-0.13	6.0-8.9	0.0-0.5	.28	.28			
	50-80	0-5	40-60	35-60	1.35-1.55	0.06-0.2	0.10-0.18	6.0-8.9	0.0-0.5	.28	.28			
3456B:														
Ware--------------	0-14	45-80	5-50	5-20	1.40-1.70	0.6-2	0.15-0.18	0.0-2.9	2.0-3.0	.24	.24	5	3	86
	14-21	5-80	5-75	10-32	1.40-1.70	0.6-2	0.20-0.24	0.0-2.9	0.2-0.5	.32	.32			
	21-60	30-82	10-62	8-18	1.60-1.70	2-20	0.07-0.19	0.0-2.9	0.2-0.5	.32	.32			
3590L:														
Cairo-------------	0-17	0-19	30-60	40-60	1.10-1.40	0.01-0.06	0.10-0.18	6.0-8.9	5.0-7.0	.24	.24	4	4	86
	17-30	0-35	30-60	35-55	1.40-1.65	0.01-0.06	0.08-0.12	6.0-8.9	0.0-2.0	.28	.28			
	30-80	55-90	5-40	5-15	1.50-1.70	6-20	0.08-0.18	0.0-2.9	0.0-0.5	.17	.24			
3682BL:														
Medway------------	0-9	0-85	10-60	5-40	1.25-1.50	0.6-2	0.20-0.23	0.0-2.9	3.0-6.0	.28	.28	5	7	38
	9-25	0-50	10-60	18-40	1.20-1.50	0.6-2	0.14-0.18	0.0-2.9	3.0-4.0	.32	.32			
	25-36	5-90	5-65	5-30	1.20-1.60	0.6-6	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	36-60	10-90	5-60	5-30	1.20-1.60	0.6-6	0.08-0.15	0.0-2.9	0.0-0.5	.02	.24			
5079B2:														
Menfro------------	0-7	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
5079C3:														
Menfro------------	0-5	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	4	6	48
	5-57	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	57-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
5079D3, 5079E3:														
Menfro------------	0-5	0-5	65-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	4	6	48
	5-57	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	57-80	0-10	65-85	8-20	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
5214B2:														
Hosmer------------	0-4	0-5	65-88	12-20	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	4-25	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	25-64	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	64-80	0-10	65-85	15-27	1.50-1.70	0.6-2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
5214C3, 5214D3:														
Hosmer------------	0-2	0-5	65-88	12-33	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	3	6	48
	2-23	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	23-62	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	62-80	0-10	65-85	15-27	1.50-1.70	0.6-2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
8071A:														
Darwin------------	0-10	0-10	35-55	40-45	1.20-1.40	0.01-0.06	0.11-0.14	9.0-25.0	4.0-5.0	.24	.24	5	4	86
	10-62	0-10	35-55	45-60	1.30-1.50	0.01-0.06	0.11-0.14	9.0-25.0	0.0-2.0	.24	.24			
	62-80	0-10	35-70	30-55	1.40-1.60	0.06-0.2	0.10-0.20	6.0-8.9	0.0-0.5	.24	.24			
8085A:														
Jacob-------------	0-4	0-5	25-45	55-70	1.30-1.50	0.06-0.2	0.11-0.13	9.0-25.0	2.0-4.0	.28	.28	5	4	86
	4-50	0-5	20-40	60-75	1.35-1.45	0.01-0.06	0.10-0.13	9.0-25.0	0.0-2.0	.28	.28			
	50-80	0-5	25-45	55-70	1.30-1.45	0.01-0.06	0.10-0.13	9.0-25.0	0.0-1.5	.28	.28			
8092B:														
Sarpy-------------	0-9	80-90	5-15	0-5	1.20-1.50	6-20	0.05-0.09	0.0-2.9	0.5-1.0	.02	.02	5	2	134
	9-80	80-95	5-15	0-5	1.20-1.50	6-20	0.05-0.09	0.0-2.9	0.0-0.5	.02	.02			
8162A:														
Gorham------------	0-14	2-15	45-60	27-38	1.30-1.50	0.2-0.6	0.13-0.20	3.0-5.9	4.0-5.0	.28	.28	5	4	86
	14-36	2-15	45-60	27-38	1.35-1.55	0.2-0.6	0.11-0.18	3.0-5.9	0.2-1.0	.28	.28			
	36-47	25-58	20-40	22-35	1.40-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.32	.32			
	47-80	67-93	2-18	0-15	1.50-1.75	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.24	.24			
8180A:														
Dupo--------------	0-9	0-10	75-90	10-18	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	9-25	0-10	75-90	10-18	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
	25-80	0-7	30-60	30-60	1.35-1.60	0.06-0.2	0.08-0.19	6.0-8.9	0.2-1.0	.32	.32			
8284A:														
Tice--------------	0-24	0-15	45-70	27-35	1.25-1.45	0.6-2	0.21-0.24	3.0-5.9	2.0-3.0	.32	.32	5	7	38
	24-47	0-15	45-70	22-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.32	.32			
	47-80	5-40	45-65	15-30	1.40-1.60	0.6-2	0.20-0.22	3.0-5.9	0.0-1.0	.32	.32			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
8331A:														
Haymond-----------	0-20	1-35	45-85	10-20	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	20-60	1-35	45-85	10-18	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	0.5-2.0	.49	.49			
	60-80	1-65	5-80	2-26	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			
8333A:														
Wakeland----------	0-8	1-14	65-85	10-18	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	8-68	1-14	65-85	10-18	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			
	68-80	3-41	49-85	10-18	1.35-1.55	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
8334A:														
Birds-------------	0-8	0-15	60-75	15-25	1.30-1.50	0.2-0.6	0.21-0.25	0.0-2.9	1.0-3.0	.43	.43	5	6	56
	8-80	3-25	55-70	18-27	1.40-1.60	0.2-0.6	0.20-0.22	0.0-2.9	0.0-2.0	.49	.49			
8420A:														
Piopolis----------	0-7	0-25	45-73	27-35	1.20-1.40	0.06-0.2	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32	5	7	38
	7-37	0-25	45-73	27-35	1.40-1.60	0.06-0.2	0.18-0.20	3.0-5.9	0.1-2.0	.32	.32			
	37-80	0-30	45-75	25-38	1.50-1.70	0.06-0.2	0.18-0.20	3.0-5.9	0.1-2.0	.32	.32			
8422A:														
Cape--------------	0-22	0-10	40-70	30-40	1.25-1.45	0.06-0.2	0.15-0.19	3.0-5.9	1.0-3.0	.32	.32	5	7	38
	22-45	0-10	35-60	40-60	1.30-1.50	0.01-0.06	0.10-0.13	6.0-8.9	0.1-2.0	.28	.28			
	45-80	0-15	35-65	35-60	1.25-1.50	0.06-0.2	0.11-0.19	3.0-5.9	0.1-2.0	.32	.32			
8426A:														
Karnak------------	0-5	0-5	25-60	40-65	1.20-1.40	0.06-0.2	0.11-0.14	6.0-8.9	2.0-3.0	.24	.24	5	4	86
	5-50	0-5	25-60	40-65	1.30-1.50	0.01-0.2	0.09-0.13	6.0-8.9	0.0-0.5	.28	.28			
	50-80	0-5	40-60	35-60	1.35-1.55	0.06-0.2	0.10-0.18	6.0-8.9	0.0-0.5	.28	.28			
8427B:														
Burnside----------	0-17	0-20	60-80	20-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	3	6	48
	17-57	5-60	25-80	15-27	1.40-1.60	0.6-2	0.10-0.16	0.0-2.9	0.0-1.0	.32	.24			
	>57	---	---	---	---	0.02-2	---	---	---	---	---			
8456B:														
Ware--------------	0-14	45-80	5-50	5-20	1.40-1.70	0.6-2	0.15-0.18	0.0-2.9	2.0-3.0	.24	.24	5	5	56
	14-21	5-80	5-75	10-32	1.40-1.70	0.6-2	0.20-0.24	0.0-2.9	0.2-0.5	.32	.32			
	21-60	30-82	10-62	8-18	1.60-1.70	2-20	0.07-0.19	0.0-2.9	0.2-0.5	.32	.32			
8475B:														
Elsah-------------	0-10	0-20	50-90	10-25	1.40-1.60	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.43	.43	3	5	56
	10-32	0-50	40-90	8-18	1.30-1.50	0.6-2	0.08-0.17	0.0-2.9	0.0-0.5	.49	.55			
	32-80	0-50	30-55	5-18	1.50-1.75	2-20	0.05-0.10	0.0-2.9	0.0-0.5	.24	.32			

Table 18.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
8589B:														
Bowdre------------	0-11	0-19	40-60	35-60	1.40-1.50	0.06-0.2	0.15-0.20	6.0-8.9	1.0-3.0	.24	.24	3	4	86
	11-17	0-19	39-60	35-60	1.40-1.50	0.06-0.2	0.15-0.20	6.0-8.9	0.0-0.5	.32	.32			
	17-23	0-45	45-80	10-25	1.50-1.55	0.2-0.6	0.19-0.22	0.0-2.9	0.0-0.5	.32	.32			
	23-60	30-88	5-50	2-25	1.50-1.55	0.6-2	0.15-0.22	0.0-2.9	0.0-0.5	.24	.24			
8590A:														
Cairo-------------	0-17	0-19	30-60	40-60	1.10-1.40	0.01-0.06	0.10-0.18	6.0-8.9	5.0-7.0	.24	.24	4	4	86
	17-30	0-35	30-60	35-55	1.40-1.65	0.01-0.06	0.08-0.12	6.0-8.9	0.0-2.0	.28	.28			
	30-80	55-90	5-40	5-15	1.50-1.70	6-20	0.08-0.18	0.0-2.9	0.0-0.5	.17	.24			
8682B:														
Medway------------	0-9	0-85	10-60	5-40	1.25-1.50	0.6-2	0.20-0.23	0.0-2.9	3.0-6.0	.28	.28	5	7	38
	9-25	0-50	10-60	18-40	1.20-1.50	0.6-2	0.14-0.18	0.0-2.9	3.0-4.0	.32	.32			
	25-36	5-90	5-65	5-30	1.20-1.60	0.6-6	0.11-0.15	0.0-2.9	0.0-0.5	.24	.24			
	36-60	10-90	5-60	5-30	1.20-1.60	0.6-6	0.08-0.15	0.0-2.9	0.0-0.5	.02	.24			
8787A:														
Banlic------------	0-8	1-15	70-85	12-18	1.40-1.60	0.2-0.6	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	8-21	1-15	70-85	12-18	1.40-1.60	0.06-0.2	0.20-0.22	0.0-2.9	0.2-0.8	.49	.49			
	21-55	1-15	70-85	10-18	1.65-1.90	0.06-0.2	0.10-0.11	0.0-2.9	0.1-0.5	.49	.49			
	55-80	5-15	70-80	12-18	1.50-1.70	0.2-0.6	0.05-0.08	0.0-2.9	0.1-0.3	.55	.55			
MW. Miscellaneous water														
W. Water														

Table 19.—Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
75B, 75C:					
Drury-----------	0-6	5.6-7.8	1.0-2.0	8.0-16	0
	6-33	5.6-7.3	0.0-0.2	11-15	0
	33-80	6.1-7.8	0.0-0.2	9.0-12	0-15
75C3:					
Drury-----------	0-1	5.6-7.8	0.5-1.0	8.0-16	0
	1-28	5.6-7.3	0.0-0.2	11-15	0
	28-80	6.1-7.8	0.0-0.2	9.0-12	0-15
75D:					
Drury-----------	0-6	5.6-7.8	1.0-2.0	8.0-16	0
	6-33	5.6-7.3	0.0-0.2	11-15	0
	33-80	6.1-7.8	0.0-0.2	9.0-12	0-15
79B:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	10-16	0
	10-62	4.9-7.3	0.0-0.5	15-20	0
	62-80	4.9-7.3	0.0-0.5	5.0-10	0
79C2:					
Menfro----------	0-7	5.1-7.3	0.5-2.0	10-16	0
	7-59	4.9-7.3	0.0-0.5	15-20	0
	59-80	4.9-7.3	0.0-0.5	5.0-10	0
79C3:					
Menfro----------	0-5	5.1-7.3	0.5-1.0	10-16	0
	5-57	4.9-7.3	0.0-0.5	15-20	0
	57-80	4.9-7.3	0.0-0.5	5.0-10	0
79D2:					
Menfro----------	0-7	5.1-7.3	0.5-2.0	10-16	0
	7-59	4.9-7.3	0.0-0.5	15-20	0
	59-80	4.9-7.3	0.0-0.5	5.0-10	0
79D3:					
Menfro----------	0-5	5.1-7.3	0.5-1.0	10-16	0
	5-57	4.9-7.3	0.0-0.5	15-20	0
	57-80	4.9-7.3	0.0-0.5	5.0-10	0
79E:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	10-16	0
	10-62	4.9-7.3	0.0-0.5	15-20	0
	62-80	4.9-7.3	0.0-0.5	5.0-10	0
79E2:					
Menfro----------	0-7	5.1-7.3	0.5-2.0	10-16	0
	7-59	4.9-7.3	0.0-0.5	15-20	0
	59-80	4.9-7.3	0.0-0.5	5.0-10	0
79E3:					
Menfro----------	0-5	5.1-7.3	0.5-2.0	10-16	0
	5-57	4.9-7.3	0.0-0.5	15-20	0
	57-80	4.9-7.3	0.0-0.5	5.0-10	0

Table 19.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
79F:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	10-16	0
	10-62	4.9-7.3	0.0-0.5	15-20	0
	62-80	4.9-7.3	0.0-0.5	5.0-10	0
99G.					
Sandstone and limestone rock land					
164A, 164B:					
Stoy------------	0-13	4.5-7.0	1.0-3.0	14-20	0
	13-32	4.5-5.5	0.2-1.0	---	0
	32-45	4.5-5.5	0.2-0.5	---	0
	45-80	4.5-6.0	0.2-0.5	16-23	0
214B:					
Hosmer----------	0-7	4.5-6.7	1.0-2.0	9.0-20	0
	7-28	4.5-5.5	0.2-1.0	12-23	0
	28-67	4.5-6.0	0.0-0.2	9.0-21	0
	67-80	4.5-6.5	0.0-0.2	9.0-16	0
214C2:					
Hosmer----------	0-4	4.5-6.7	1.0-2.0	9.0-20	0
	4-25	4.5-5.5	0.2-1.0	12-23	0
	25-64	4.5-6.0	0.0-0.2	9.0-21	0
	64-80	4.5-6.5	0.0-0.2	9.0-16	0
214C3:					
Hosmer----------	0-2	4.5-6.7	1.0-2.0	9.0-20	0
	2-23	4.5-5.5	0.2-1.0	12-23	0
	23-62	4.5-6.0	0.0-0.2	9.0-21	0
	62-80	4.5-6.5	0.0-0.2	9.0-16	0
214D2:					
Hosmer----------	0-4	4.5-6.7	1.0-2.0	9.0-20	0
	4-25	4.5-5.5	0.2-1.0	12-23	0
	25-64	4.5-6.0	0.0-0.2	9.0-21	0
	64-80	4.5-6.5	0.0-0.2	9.0-16	0
214D3:					
Hosmer----------	0-2	4.5-6.7	0.5-1.0	9.0-20	0
	2-23	4.5-5.5	0.2-1.0	12-23	0
	23-62	4.5-6.0	0.0-0.2	9.0-21	0
	62-80	4.5-6.5	0.0-0.2	9.0-16	0
477B:					
Winfield--------	0-9	5.6-7.3	0.5-2.0	10-15	0
	9-13	5.6-7.3	0.5-1.0	12-21	0
	13-56	4.5-6.5	0.0-0.5	13-22	0
	56-80	5.1-7.2	0.0-0.5	10-14	0
477C2:					
Winfield--------	0-6	5.6-7.3	0.5-2.0	10-15	0
	6-10	5.6-7.3	0.5-1.0	12-21	0
	10-53	4.5-6.5	0.0-0.5	13-22	0
	53-80	5.1-7.2	0.0-0.5	10-14	0

Table 19.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
477C3:					
Winfield--------	0-4	5.6-7.3	0.5-1.0	10-15	0
	4-8	5.6-7.3	0.2-0.8	12-21	0
	8-51	4.5-6.5	0.0-0.5	13-22	0
	51-80	5.1-7.2	0.0-0.5	10-14	0
477D2:					
Winfield--------	0-6	5.6-7.3	0.5-2.0	10-15	0
	6-10	5.6-7.3	0.5-1.0	12-21	0
	10-53	4.5-6.5	0.0-0.5	13-22	0
	53-80	5.1-7.2	0.0-0.5	10-14	0
477D3:					
Winfield--------	0-4	5.6-7.3	0.5-1.0	10-15	0
	4-8	5.6-7.3	0.5-1.0	12-21	0
	8-51	4.5-6.5	0.0-0.5	13-22	0
	51-80	5.1-7.2	0.0-0.5	10-14	0
692D:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	10-16	0
	10-62	4.9-7.3	0.0-0.5	15-20	0
	62-80	4.9-7.3	0.0-0.5	5.0-10	0
Wellston--------	0-8	5.1-6.5	1.0-3.0	8.0-16	0
	8-31	4.5-6.0	0.5-1.0	11-24	0
	31-43	4.5-6.0	0.0-0.5	11-22	0
	43-60	4.5-6.0	0.0-0.1	10-20	0
	>60	---	---	---	---
692D2:					
Menfro----------	0-7	5.1-7.3	0.5-2.0	5.0-20	0
	7-59	4.9-7.3	0.0-0.5	13-22	0
	59-80	4.9-7.3	0.0-0.2	1.0-12	0
Wellston--------	0-5	5.1-6.5	1.0-3.0	8.0-16	0
	5-28	4.5-6.0	0.5-1.0	11-24	0
	28-40	4.5-6.0	0.0-0.5	11-22	0
	40-57	4.5-6.0	0.0-0.1	10-20	0
	>57	---	---	---	---
692F:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	5.0-20	0
	10-62	4.9-7.3	0.0-0.5	13-22	0
	62-80	4.9-7.3	0.0-0.2	1.0-12	0
Wellston--------	0-8	5.1-6.5	1.0-3.0	8.0-16	0
	8-31	4.5-6.0	0.5-1.0	11-24	0
	31-43	4.5-6.0	0.0-0.5	11-22	0
	43-60	4.5-6.0	0.0-0.1	10-20	0
	>60	---	---	---	---
694D:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	10-16	0
	10-62	4.9-7.3	0.0-0.5	15-20	0
	62-80	4.9-7.3	0.0-0.5	5.0-10	0
Baxter----------	0-15	4.5-6.5	2.0-4.0	9.0-20	0
	15-22	4.5-6.5	0.1-1.0	7.0-18	0
	22-43	4.5-5.5	0.0-0.5	10-28	0
	43-80	4.5-5.5	0.0-0.1	10-28	0

Table 19.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
694D2:					
Menfro----------	0-7	5.1-7.3	0.5-2.0	10-16	0
	7-59	4.9-7.3	0.0-0.5	15-20	0
	59-80	4.9-7.3	0.0-0.5	5.0-10	0
Baxter----------	0-12	4.5-6.5	2.0-4.0	9.0-20	0
	12-19	4.5-6.5	0.1-1.0	7.0-18	0
	19-40	4.5-5.5	0.0-0.5	10-28	0
	40-80	4.5-5.5	0.0-0.1	10-28	0
694F:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	10-16	0
	10-62	4.9-7.3	0.0-0.5	15-20	0
	62-80	4.9-7.3	0.0-0.5	5.0-10	0
Baxter----------	0-15	4.5-6.5	2.0-4.0	9.0-20	0
	15-22	4.5-6.5	0.1-1.0	7.0-18	0
	22-43	4.5-5.5	0.0-0.5	10-28	0
	43-80	4.5-5.5	0.0-0.1	10-28	0
801B:					
Orthents--------	0-80	5.1-6.5	0.0-1.0	3.0-23	0
802D:					
Orthents--------	0-6	5.6-7.3	0.1-1.0	7.0-18	0
	6-80	5.6-7.3	0.0-1.0	7.0-20	0
832F:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	10-16	0
	10-62	4.9-7.3	0.0-0.5	15-20	0
	62-80	4.9-7.3	0.0-0.5	5.0-10	0
Clarksville-----	0-16	3.6-6.0	0.5-2.0	3.0-18	0
	16-26	3.6-5.5	0.2-0.5	---	0
	26-80	3.6-5.5	0.1-0.4	---	0
832G:					
Clarksville-----	0-16	3.6-6.0	0.5-2.0	3.0-18	0
	16-26	3.6-5.5	0.2-0.5	---	0
	26-80	3.6-5.5	0.1-0.4	---	0
Menfro----------	0-10	5.1-7.3	0.5-2.0	10-16	0
	10-62	4.9-7.3	0.0-0.5	15-20	0
	62-80	4.9-7.3	0.0-0.5	5.0-10	0
833F:					
Menfro----------	0-10	5.1-7.3	0.5-2.0	5.0-20	0
	10-62	4.9-7.3	0.0-0.5	12-21	0
	62-80	4.9-7.3	0.0-0.2	1.0-12	0
Goss------------	0-7	4.5-6.5	0.5-2.0	6.0-15	0
	7-22	4.3-6.0	0.0-0.1	6.0-24	0
	22-80	4.5-6.0	0.0-0.5	21-49	0

Table 19.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
833G:					
Goss------------	0-7	4.5-6.5	0.5-2.0	6.0-15	0
	7-22	4.3-6.0	0.0-0.1	6.0-24	0
	22-80	4.5-6.0	0.0-0.5	21-49	0
Menfro----------	0-10	5.1-7.3	0.5-2.0	5.0-20	0
	10-62	4.9-7.3	0.0-0.5	12-21	0
	62-80	4.9-7.3	0.0-0.2	1.0-12	0
834F, 834G:					
Wellston--------	0-8	5.1-6.5	1.0-3.0	8.0-16	0
	8-31	4.5-6.0	0.5-1.0	11-24	0
	31-43	4.5-6.0	0.0-0.5	11-22	0
	43-60	4.5-6.0	0.0-0.1	10-20	0
	>60	---	---	---	---
Westmore--------	0-6	5.1-7.3	1.0-3.0	11-22	0
	6-22	4.5-6.0	0.5-1.0	16-23	0
	22-62	5.1-7.8	0.2-0.5	21-37	0
	>62	---	---	---	---
864. Pits					
940D:					
Zanesville------	0-7	4.5-6.0	1.0-2.0	---	0
	7-22	4.5-6.0	0.5-2.0	---	0
	22-42	4.5-6.0	0.0-0.5	---	0
	42-60	4.5-6.0	0.0-0.5	---	0
	>60	---	---	---	---
Westmore--------	0-6	5.1-7.3	1.0-3.0	11-22	0
	6-22	4.5-6.0	0.5-1.0	16-23	0
	22-62	5.1-7.8	0.2-0.5	21-37	0-5
	>62	---	---	---	---
940D2:					
Zanesville------	0-4	4.5-6.0	1.0-2.0	---	0
	4-19	4.5-6.0	0.5-2.0	---	0
	19-39	4.5-6.0	0.0-0.5	---	0
	39-57	4.5-6.0	0.0-0.5	---	0
	>57	---	---	---	---
Westmore--------	0-3	5.1-7.3	1.0-3.0	11-22	0
	3-19	4.5-6.0	0.5-1.0	16-23	0
	19-59	5.1-7.8	0.2-0.5	21-37	0
	>59	---	---	---	---
977F:					
Wellston--------	0-8	5.1-6.5	1.0-3.0	8.0-16	0
	8-31	4.5-6.0	0.5-1.0	11-24	0
	31-43	4.5-6.0	0.0-0.5	11-22	0
	43-60	4.5-6.0	0.0-0.1	10-20	0
	>60	---	---	---	---
Neotoma---------	0-10	5.1-7.0	3.0-6.0	11-28	0
	10-26	3.6-6.5	0.0-0.5	6.0-17	0
	26-65	4.5-6.5	0.0-0.2	3.0-17	0
	>65	---	---	---	---

Table 19.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
977G:					
Wellston--------	0-8	5.1-6.5	1.0-3.0	8.0-16	0
	8-31	4.5-6.0	0.5-1.0	11-24	0
	31-43	4.5-6.0	0.0-0.5	11-22	0
	43-60	4.5-6.0	0.0-0.1	10-20	0
	>60	---	---	---	---
Neotoma---------	0-10	5.1-7.0	3.0-6.0	11-28	0
	10-26	3.6-6.5	0.0-0.5	6.0-17	0
	26-65	4.5-6.5	0.0-0.2	3.0-17	0
	>65	---	---	---	---
1334A:					
Birds-----------	0-8	5.6-7.8	1.0-3.0	11-21	0
	8-80	5.1-7.8	0.0-2.0	11-20	0
1426A:					
Karnak----------	0-5	5.6-6.2	2.0-3.0	28-42	0
	5-50	5.6-7.3	0.0-0.5	24-37	0
	50-80	5.6-7.5	0.0-0.5	24-37	0
3071A, 3071L:					
Darwin----------	0-10	6.1-7.8	4.0-5.0	32-37	0
	10-62	6.1-7.8	0.0-2.0	27-40	0
	62-80	6.6-8.4	0.0-0.5	18-34	0-15
3092BL:					
Sarpy-----------	0-9	6.6-8.4	0.5-1.0	2.0-8.0	0-15
	9-80	7.4-8.4	0.0-0.5	1.0-5.0	5-15
3162L:					
Gorham----------	0-14	5.1-7.8	4.0-5.0	24-35	0
	14-36	6.1-7.8	0.2-1.0	16-26	0
	36-47	6.1-7.8	0.0-0.5	13-19	0
	47-80	6.1-7.8	0.0-0.5	3.0-10	0-10
3180A:					
Dupo------------	0-9	5.6-7.8	1.0-2.0	8.0-15	0-5
	9-25	5.6-7.8	0.0-0.5	6.0-12	0-15
	25-80	6.6-7.8	0.2-1.0	21-29	0-10
3288A:					
Petrolia--------	0-8	5.6-7.8	2.0-3.0	15-25	0
	8-55	6.1-7.3	0.2-1.0	12-23	0
	55-80	5.1-7.8	0.2-1.0	10-20	0
3331A:					
Haymond---------	0-20	5.6-7.8	1.0-3.0	4.0-15	0
	20-60	5.6-7.8	0.5-2.0	10-16	0
	60-80	6.1-7.8	0.0-1.0	3.0-16	0
3333A:					
Wakeland--------	0-8	5.6-7.3	1.0-3.0	4.0-12	0
	8-68	5.6-7.8	0.0-1.0	4.0-12	0
	68-80	5.6-7.8	0.0-0.5	4.0-12	0
3334A:					
Birds-----------	0-8	5.6-7.8	1.0-3.0	11-21	0
	8-80	5.1-7.8	0.0-2.0	11-20	0

Table 19.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
3426A:					
Karnak----------	0-5	5.6-6.2	2.0-3.0	28-42	0
	5-50	5.6-7.3	0.0-0.5	24-37	0
	50-80	5.6-7.5	0.0-0.5	24-37	0
3456B:					
Ware------------	0-14	5.6-8.4	2.0-3.0	13-18	0-5
	14-21	5.6-8.4	0.2-0.5	9.0-14	0-15
	21-60	6.1-7.8	0.2-0.5	5.0-12	0-5
3590L:					
Cairo-----------	0-17	6.1-7.8	5.0-7.0	34-50	0
	17-30	6.1-7.8	0.0-2.0	24-37	0
	30-80	6.1-7.8	0.0-0.5	3.0-10	0-5
3682BL:					
Medway----------	0-9	6.1-7.8	3.0-6.0	9.0-36	0-5
	9-25	6.1-8.4	3.0-4.0	16-32	0-15
	25-36	6.1-8.4	0.0-0.5	3.0-19	0-15
	36-60	6.1-8.4	0.0-0.5	3.0-19	0-10
5079B2:					
Menfro----------	0-7	5.1-7.3	0.5-2.0	10-16	0
	7-59	5.1-7.3	0.0-0.5	15-20	0
	59-80	5.1-7.3	0.0-0.5	5.0-10	0
5079C3:					
Menfro----------	0-5	5.1-7.3	0.5-2.0	10-16	0
	5-57	5.1-7.3	0.0-0.5	15-20	0
	57-80	5.1-7.3	0.0-0.5	5.0-10	0
5079D3, 5079E3:					
Menfro----------	0-5	5.1-7.3	0.5-1.0	10-16	0
	5-57	5.1-7.3	0.0-0.5	15-20	0
	57-80	5.1-7.3	0.0-0.5	5.0-10	0
5214B2:					
Hosmer----------	0-4	4.5-6.7	1.0-2.0	9.0-20	0
	4-25	4.5-5.5	0.2-1.0	12-23	0
	25-64	4.5-6.0	0.0-0.2	9.0-21	0
	64-80	4.5-6.5	0.0-0.2	9.0-16	0
5214C3, 5214D3:					
Hosmer----------	0-2	4.5-6.7	0.5-1.0	9.0-20	0
	2-23	4.5-5.5	0.2-1.0	12-23	0
	23-62	4.5-6.0	0.0-0.2	9.0-21	0
	62-80	4.5-6.5	0.0-0.2	9.0-16	0
8071A:					
Darwin----------	0-10	6.1-7.8	4.0-5.0	32-37	0
	10-62	6.1-7.8	0.0-2.0	27-40	0
	62-80	6.6-8.4	0.0-0.5	18-34	0-15
8085A:					
Jacob-----------	0-4	5.1-6.5	2.0-4.0	35-45	0
	4-50	3.6-5.5	0.0-2.0	---	0
	50-80	3.6-5.5	0.0-1.5	---	0

Table 19.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
8092B:					
Sarpy-----------	0-9	6.6-8.4	0.5-1.0	2.0-8.0	0-15
	9-80	7.4-8.4	0.0-0.5	1.0-5.0	5-15
8162A:					
Gorham----------	0-14	5.1-7.8	4.0-5.0	24-35	0
	14-36	6.1-7.8	0.2-1.0	16-26	0
	36-47	6.1-7.8	0.0-0.5	13-19	0
	47-80	6.1-7.8	0.0-0.5	3.0-10	0-10
8180A:					
Dupo------------	0-9	5.6-7.8	1.0-2.0	8.0-15	0-5
	9-25	5.6-7.8	0.0-0.5	6.0-12	0-15
	25-80	6.6-7.8	0.2-1.0	21-29	0-10
8284A:					
Tice------------	0-24	6.1-7.8	2.0-3.0	20-27	0
	24-47	5.6-7.8	0.0-1.0	16-23	0
	47-80	5.6-7.8	0.0-1.0	9.0-20	0-20
8331A:					
Haymond---------	0-20	5.6-7.8	1.0-3.0	4.0-15	0
	20-60	5.6-7.8	0.5-2.0	10-16	0
	60-80	6.1-7.8	0.0-1.0	3.0-16	0
8333A:					
Wakeland--------	0-8	5.6-7.3	1.0-3.0	4.0-12	0
	8-68	5.6-7.8	0.0-1.0	4.0-12	0
	68-80	5.6-7.8	0.0-0.5	4.0-12	0
8334A:					
Birds-----------	0-8	5.6-7.8	1.0-3.0	11-21	0
	8-80	5.1-7.8	0.0-2.0	11-20	0
8420A:					
Piopolis--------	0-7	5.1-6.5	1.0-3.0	18-27	0
	7-37	4.5-5.5	0.1-2.0	---	0
	37-80	5.1-7.3	0.1-2.0	15-27	0
8422A:					
Cape------------	0-22	4.5-7.3	1.0-3.0	20-30	0
	22-45	3.6-5.5	0.1-2.0	24-40	0
	45-80	3.6-5.5	0.1-2.0	---	0
8426A:					
Karnak----------	0-5	5.6-6.2	2.0-3.0	28-42	0
	5-50	5.6-7.3	0.0-0.5	24-37	0
	50-80	5.6-7.5	0.0-0.5	24-37	0
8427B:					
Burnside--------	0-17	4.5-6.0	1.0-2.0	14-20	0
	17-57	4.5-5.5	0.0-1.0	9.0-16	0
	>57	---	---	---	---
8456B:					
Ware------------	0-14	5.6-8.4	2.0-3.0	13-18	0-5
	14-21	5.6-8.4	0.2-0.5	9.0-14	0-15
	21-60	6.1-7.8	0.2-0.5	5.0-12	0-5

Table 19.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
8475B:					
Elsah-----------	0-10	5.6-7.3	1.0-2.0	8.0-16	0
	10-32	5.6-7.3	0.0-0.5	5.0-12	0
	32-80	6.6-7.3	0.0-0.5	3.0-12	0
8589B:					
Bowdre----------	0-11	5.6-7.3	1.0-3.0	---	---
	11-17	5.6-7.3	0.0-0.5	---	---
	17-23	6.1-8.4	0.0-0.5	---	---
	23-60	6.1-8.4	0.0-0.5	---	---
8590A:					
Cairo-----------	0-17	6.1-7.8	5.0-7.0	34-50	0
	17-30	6.1-7.8	0.0-2.0	24-37	0
	30-80	6.1-7.8	0.0-0.5	3.0-10	0-5
8682B:					
Medway----------	0-9	6.1-7.8	3.0-6.0	9.0-36	0-5
	9-25	6.1-8.4	3.0-4.0	17-32	0-10
	25-36	6.1-8.4	0.0-0.5	3.0-19	0-10
	36-60	6.1-8.4	0.0-0.5	3.0-19	0-10
8787A:					
Banlic----------	0-8	5.1-7.8	1.0-2.0	7.0-13	0
	8-21	4.5-7.3	0.2-0.8	7.0-13	0
	21-55	4.5-5.5	0.1-0.5	6.0-13	0
	55-80	4.5-6.5	0.1-0.3	7.0-13	0
MW. Miscellaneous water					
W. Water					

Table 20.—Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
75B, 75C, 75C3, 75D:										
Drury	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
79B, 79C2, 79C3, 79D2, 79D3, 79E, 79E2, 79E3, 79F:										
Menfro	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
99G.										
Sandstone and limestone rock land										
164A, 164B:										
Stoy	C	Jan-May	1.0-2.0	2.0-6.0	Perched	---	---	---	---	None
		Jun-Dec	>6.0	>6.0	---	---	---	---	---	None
214B:										
Hosmer	C	Jan-Apr	1.5-3.0	1.5-4.0	Perched	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None
214C2:										
Hosmer	C	Jan-Apr	1.5-3.0	1.5-4.0	Perched	---	---	---	---	---
		May-Dec	>6.0	>6.0	---	---	---	---	---	---
214C3:										
Hosmer	C	Jan-Apr	1.5-3.0	1.5-4.0	Perched	---	---	---	---	None
		May-Dec	>6.0	>6.0	---	---	---	---	---	None
214D2, 214D3:										
Hosmer	C	Jan-Apr	1.5-3.0	1.5-4.0	Perched	---	---	---	---	---
		May-Dec	>6.0	>6.0	---	---	---	---	---	---
477B, 477C2, 477C3, 477D2, 477D3:										
Winfield	B	Jan-Apr	2.0-3.5	>6.0	Apparent	---	---	---	---	---
		May	4.0	>6.0	Apparent	---	---	---	---	---
		Jun-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov	4.0	>6.0	Apparent	---	---	---	---	---
		Dec	2.0-3.5	>6.0	Apparent	---	---	---	---	---

Table 20.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
692D, 692D2, 692F:										
Menfro	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Wellston	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
694D, 694D2, 694F:										
Menfro	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Baxter	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
801B:										
Orthents	C	Jan-May	1.0	>6.0	Apparent	---	---	---	---	---
		Jun	3.0	>6.0	Apparent	---	---	---	---	---
		Jul-Sep	>6.0	>6.0	---	---	---	---	---	---
		Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	1.0	>6.0	Apparent	---	---	---	---	---
802D:										
Orthents	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
832F:										
Menfro	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Clarksville	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
832G:										
Clarksville	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Menfro	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
833F:										
Menfro	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Goss	B	Jan----	>6.0	>6.0	---	---	---	---	---	---
833G:										
Goss	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Menfro	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
834F, 834G:										
Wellston	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Westmore	C	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
864.										
Pits										

Table 20.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
940D, 940D2:										
Zanesville	C	Jan-Apr	2.0-3.0	2.0-3.5	Perched	---	---	---	---	---
		May-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	2.0-3.0	2.0-3.5	Perched	---	---	---	---	---
Westmore	C	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
977F, 977G:										
Wellston	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Neotoma	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
1334A:										
Birds	C/D	Jan-Apr	0.0	>6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	0.0	>6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
1426A:										
Karnak	D	Jan-Apr	0.0	>6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	0.0	>6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
3071A:										
Darwin	C/D	Jan-Apr	0.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-1.0	Brief	Occasional	Brief	Occasional
		Dec	0.0	>6.0	Apparent	0.0-1.0	Brief	Occasional	Brief	Occasional
3071L:										
Darwin	C/D	Jan-Apr	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-1.0	Long	Occasional	Long	Occasional
		Dec	0.0	>6.0	Apparent	0.0-1.0	Long	Occasional	Long	Occasional
3092BL:										
Sarpy	A	Jan-Jun	>6.0	>6.0	---	---	---	---	Long	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	---	Long	Occasional

Table 20.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
3162L:										
Gorham----------------	B/D	Jan-Apr	0.0	>6.0	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-1.0	Long	Occasional	Long	Occasional
		Dec	0.0	>6.0	Apparent	0.0-1.0	Long	Occasional	Long	Occasional
3180A:										
Dupo------------------	C	Jan-Apr	0.5	>6.0	Apparent	---	---	---	Brief	Frequent
		May-Jun	1.0	>6.0	Apparent	---	---	---	Brief	Frequent
		Jul	3.0	>6.0	Apparent	---	---	---	---	---
		Aug-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Dec	0.5	>6.0	Apparent	---	---	---	Brief	Occasional
3288A:										
Petrolia--------------	C/D	Jan-Apr	0.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-1.0	Brief	Occasional	Brief	Occasional
		Dec	0.0	>6.0	Apparent	0.0-1.0	Brief	Occasional	Brief	Occasional
3331A:										
Haymond---------------	B	Jan-Mar	3.0	>6.0	Apparent	---	---	---	Brief	Frequent
		Apr	4.0	>6.0	Apparent	---	---	---	Brief	Frequent
		May-Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	4.0	>6.0	Apparent	---	---	---	---	---
3333A:										
Wakeland--------------	C	Jan-May	1.0	>6.0	Apparent	---	---	---	Brief	Frequent
		Jun	3.0	>6.0	Apparent	---	---	---	Brief	Frequent
		Jul-Sep	>6.0	>6.0	---	---	---	---	---	---
		Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	1.0	>6.0	Apparent	---	---	---	Brief	Occasional
3334A:										
Birds-----------------	C/D	Jan-Apr	0.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-1.0	Brief	Occasional	Brief	Occasional
		Dec	0.0	>6.0	Apparent	0.0-1.0	Brief	Occasional	Brief	Occasional

Table 20.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
3426A:										
Karnak	C/D	Jan-Apr	0.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-1.0	Brief	Occasional	Brief	Occasional
		Dec	0.0	>6.0	Apparent	0.0-1.0	Brief	Occasional	Brief	Occasional
3456B:										
Ware	B	Jan-Jun	>6.0	>6.0	---	---	---	---	Brief	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Occasional
3590L:										
Cairo	D	Jan-Apr	0.0	>6.0	Apparent	0.0-0.5	Long	Frequent	Long	Frequent
		May-Jun	1.0	>6.0	Apparent	0.0-0.5	Long	Frequent	Long	Frequent
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-0.5	Long	Occasional	Long	Occasional
		Dec	0.0	>6.0	Apparent	0.0-0.5	Long	Occasional	Long	Occasional
3682BL:										
Medway	B	Jan-Mar	3.0	>6.0	Apparent	---	---	---	Long	Frequent
		Apr	4.0	>6.0	Apparent	---	---	---	Long	Frequent
		May-Jun	>6.0	>6.0	---	---	---	---	Long	Frequent
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	4.0	>6.0	Apparent	---	---	---	Long	Occasional
5079B2, 5079C3, 5079D3, 5079E3:										
Menfro	B	Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
5214B2, 5214C3, 5214D3:										
Hosmer	C	Jan-Apr	1.5-3.0	1.5-4.0	Perched	---	---	---	---	---
		May-Dec	>6.0	>6.0	---	---	---	---	---	---
8071A:										
Darwin	C/D	Jan-Apr	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		May-Jun	1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional

Table 20.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
8085A:										
Jacob	C/D	Jan-Apr	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		May-Jun	1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
8092B:										
Sarpy	A	Jan-Jun	>6.0	>6.0	---	---	---	---	Brief	Occasional
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	>6.0	>6.0	---	---	---	---	Brief	Rare
8162A:										
Gorham	B	Jan-Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Rare	Brief	Rare
8180A:										
Dupo	C	Jan-Apr	0.5	>6.0	Apparent	---	---	---	Brief	Occasional
		May-Jun	1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Jul	3.0	>6.0	Apparent	---	---	---	---	---
		Aug-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov	1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Dec	0.5	>6.0	Apparent	---	---	---	Brief	Occasional
8284A:										
Tice	B	Jan-May	1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Jun	3.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	---	---	---	---
		Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	1.0	>6.0	Apparent	---	---	---	Brief	Rare
8331A:										
Haymond	B	Jan-Mar	3.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Apr	4.0	>6.0	Apparent	---	---	---	Brief	Occasional
		May-Jun	>6.0	>6.0	---	---	---	---	Brief	Occasional
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	4.0	>6.0	Apparent	---	---	---	---	---
8333A:										
Wakeland	C	Jan-May	1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Jun	3.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	---	---	---	---
		Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	1.0	>6.0	Apparent	---	---	---	Brief	Rare

Table 20.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
8334A:										
Birds	C/D	Jan-Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Rare	Brief	Rare
8420A:										
Piopolis	C/D	Jan-Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Rare	Brief	Rare
8422A:										
Cape	C/D	Jan-Jun	0.0	>6.0	Apparent	0.0-2.0	Brief	Occasional	Brief	Occasional
		Jul-Oct	1.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	0.0	>6.0	Apparent	0.0-2.0	Brief	Occasional	Brief	Occasional
8426A:										
Karnak	C/D	Jan-Jun	0.0	>6.0	Apparent	0.0-2.0	Brief	Occasional	Brief	Occasional
		Jul-Oct	1.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	0.0	>6.0	Apparent	0.0-2.0	Brief	Occasional	Brief	Occasional
8427B:										
Burnside	B	Jan-Jun	>6.0	>6.0	---	---	---	---	Brief	Occasional
		Jul-Dec	>6.0	>6.0	---	---	---	---	---	---
8456B:										
Ware	B	Jan-Jun	>6.0	>6.0	---	---	---	---	Brief	Occasional
		Jul-Dec	>6.0	>6.0	---	---	---	---	---	---
8475B:										
Elsah	B	Jan-Jun	>6.0	>6.0	---	---	---	---	Brief	Occasional
		Jul-Dec	>6.0	>6.0	---	---	---	---	---	---
8589B:										
Bowdre	C	Jan-May	1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Jun	3.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Jul-Sep	>6.0	>6.0	---	---	---	---	---	---
		Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	1.0	>6.0	Apparent	---	---	---	Brief	Rare
8590A:										
Cairo	D	Jan-Jun	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Oct	3.0	>6.0	Apparent	---	---	---	---	---
		Nov-Dec	0.0	>6.0	Apparent	0.0-0.5	Brief	Rare	Brief	Rare

Table 20.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Water table: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
8682B:										
Medway----------------	B	Jan-Mar	3.0	>6.0	Apparent	---	---	---	Brief	Occasional
		Apr	4.0	>6.0	Apparent	---	---	---	Brief	Occasional
		May-Jun	>6.0	>6.0	---	---	---	---	Brief	Occasional
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	4.0	>6.0	Apparent	---	---	---	---	---
8787A:										
Banlic----------------	C	Jan-Apr	0.5-2.0	1.5-6.0	Perched	---	---	---	Brief	Occasional
		May-Jun	>6.0	>6.0	---	---	---	---	Brief	Occasional
		Jul-Oct	>6.0	>6.0	---	---	---	---	---	---
		Nov-Dec	0.5-2.0	1.5-6.0	Perched	---	---	---	Brief	Rare
MW.										
Miscellaneous water										
W.										
Water										

Table 21.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
75B, 75C, 75C3, 75D:									
Drury	---	---	---	---	0	---	High	Moderate	Moderate
79B, 79C2, 79C3, 79D2, 79D3, 79E, 79E2, 79E3, 79F:									
Menfro	---	---	---	---	0	0	High	Low	Moderate
99G.									
Sandstone and limestone rock land									
164A, 164B:									
Stoy	---	---	---	---	0	---	High	High	High
214B, 214C2, 214C3, 214D2, 214D3:									
Hosmer	Fragipan	20-36	---	Weakly cemented	0	---	High	Moderate	High
477B, 477C2, 477C3: 477D2, 477D3:									
Winfield	---	---	---	---	0	---	High	Moderate	Moderate
692D:									
Menfro	---	---	---	---	0	---	High	Low	Moderate
Wellston	Bedrock (lithic)	40-72	---	---	0	---	High	Moderate	High
	Bedrock (paralithic)	40-72	---	---					
692D2, 692F:									
Menfro	---	---	---	---	0	---	High	Moderate	High
Wellston	Bedrock (lithic)	40-72	---	---	0	---	High	Moderate	High
	Bedrock (paralithic)	40-72	---	---					
694D, 694D2, 694F:									
Menfro	---	---	---	---	0	---	High	Low	Moderate
Baxter	---	---	---	---	0	---	None	High	High

Table 21.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Depth to top	Thickness	Hardness	Subsidence: Initial	Total	Potential for frost action	Risk of corrosion: Uncoated steel	Concrete
		In	In		In	In			
801B:									
Orthents	---	---	---	---	0	---	High	High	Moderate
802D:									
Orthents	---	---	---	---	0	---	Moderate	Moderate	Moderate
832F:									
Menfro	---	---	---	---	0	---	High	Low	Moderate
Clarksville	---	---	---	---	0	---	Moderate	Low	High
832G:									
Clarksville	---	---	---	---	0	---	Moderate	Low	High
Menfro	---	---	---	---	0	---	High	Low	Moderate
833F:									
Menfro	---	---	---	---	0	---	High	Moderate	High
Goss	---	---	---	---	0	---	Moderate	Moderate	Moderate
833G:									
Goss	---	---	---	---	0	---	Moderate	Moderate	Moderate
Menfro	---	---	---	---	0	---	High	Moderate	High
834F, 834G:									
Wellston	Bedrock (lithic)	40-72	---	---	0	---	High	Moderate	High
	Bedrock (paralithic)	40-72	---	---					
Westmore	Bedrock (paralithic)	48-80	---	---	0	---	High	High	Moderate
	Bedrock (lithic)	48-80	---	---					
864.									
Pits, quarries									
940D:									
Zanesville	Fragipan	20-32	---	---	0	---	None	Moderate	High
	Bedrock (lithic)	41-80	---	---					
	Bedrock (paralithic)	41-80	---	---					

Table 21.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In			
940D:									
Westmore	Bedrock (paralithic)	48-80	---	---	0	---	High	High	Moderate
	Bedrock (lithic)	48-80	---	---					
940D2:									
Zanesville	Fragipan	19-32	---	---	0	---	None	Moderate	High
	Bedrock (lithic)	41-80	---	---					
	Bedrock (paralithic)	41-80	---	---					
Westmore	Bedrock (paralithic)	48-80	---	---	0	---	High	High	Moderate
	Bedrock (lithic)	48-80	---	---					
977F, 977G:									
Wellston	Bedrock (lithic)	40-72	---	---	0	---	High	Moderate	High
	Bedrock (paralithic)	40-72	---	---					
Neotoma	Bedrock (lithic)	40-80	---	---	0	---	Low	Low	Moderate
1334A:									
Birds	---	---	---	---	0	---	High	High	Moderate
1426A:									
Karnak	---	---	---	---	0	---	High	High	Moderate
3071A, 3071L:									
Darwin	---	---	---	---	0	---	Moderate	High	Low
3092BL:									
Sarpy	---	---	---	---	0	---	Low	Low	Low
3162L:									
Gorham	---	---	---	---	0	---	High	High	Low
3180A:									
Dupo	Abrupt textural change	20-40	---	Noncemented	0	---	High	High	Moderate

Table 21.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
3288A:									
Petrolia	---	---	---	---	0	---	High	High	Low
3331A:									
Haymond	---	---	---	---	0	---	High	Low	Low
3333A:									
Wakeland	---	---	---	---	0	---	High	Moderate	Low
3334A:									
Birds	---	---	---	---	0	---	High	High	Moderate
3426A:									
Karnak	---	---	---	---	0	---	High	High	Moderate
3456B:									
Ware	---	---	---	---	0	---	Moderate	Low	Low
3590L:									
Cairo	Abrupt textural change	20-39	---	---	0	---	Moderate	High	Moderate
3682BL:									
Medway	---	---	---	---	0	---	High	High	Low
5079B2, 5079C3, 5079D3, 5079E3:									
Menfro	---	---	---	---	0	---	High	Low	Moderate
5214B2, 5214C3, 5214D3:									
Hosmer	Fragipan	20-36	---	Weakly cemented	0	---	High	Moderate	High
8071A:									
Darwin	---	---	---	---	0	---	Moderate	High	Low
8085A:									
Jacob	---	---	---	---	0	---	Moderate	High	High
8092B:									
Sarpy	---	---	---	---	0	---	Low	Low	Low
8162A:									
Gorham	---	---	---	---	0	---	High	High	Low

Table 21.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In			
8180A:									
Dupo	Abrupt textural change	20-40	---	Noncemented	0	---	High	High	Moderate
8284A:									
Tice	---	---	---	---	0	---	High	High	Low
8331A:									
Haymond	---	---	---	---	0	---	High	Low	Low
8333A:									
Wakeland	---	---	---	---	0	---	High	Moderate	Low
8334A:									
Birds	---	---	---	---	0	---	High	High	Moderate
8420A:									
Piopolis	---	---	---	---	0	---	High	High	Moderate
8422A:									
Cape	---	---	---	---	0	---	High	High	High
8426A:									
Karnak	---	---	---	---	0	---	High	High	Moderate
8427B:									
Burnside	Bedrock (lithic)	40-80	---	---	0	---	Moderate	Low	High
8456B:									
Ware	---	---	---	---	0	---	Moderate	Low	Low
8475B:									
Elsah	---	---	---	---	0	---	Moderate	Low	Moderate
8589B:									
Bowdre	Abrupt textural change	12-20	---	---	0	---	None	High	Low
8590A:									
Cairo	Abrupt textural change	20-39	---	---	0	---	Moderate	High	Moderate

Table 21.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In			
8682B:									
Medway-----------------	---	---	---	---	0	---	High	High	Low
8787A:									
Banlic-----------------	---	15-36	---	Very weakly cemented	0	---	High	High	High
MW.									
Miscellaneous water									
W.									
Water									

Table 22.—Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Banlic	Coarse-silty, mixed, active, acid, mesic Fragic Epiaquepts
Baxter	Fine, mixed, semiactive, mesic Typic Paleudalfs
Birds	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Bowdre	Clayey over loamy, smectitic, thermic Fluvaquentic Hapludolls
Burnside	Loamy-skeletal, mixed, active, mesic Oxyaquic Dystrudepts
*Cairo	Clayey over sandy or sandy-skeletal, smectitic, thermic Vertic Endoaquolls
Cape	Fine, smectitic, acid, mesic Vertic Fluvaquents
Clarksville	Loamy-skeletal, siliceous, semiactive, mesic Typic Paleudults
*Darwin	Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls
Drury	Fine-silty, mixed, superactive, mesic Dystric Eutrudepts
Dupo	Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents
Elsah	Loamy-skeletal, mixed, superactive, nonacid, mesic Typic Udifluvents
Gorham	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Goss	Clayey-skeletal, mixed, active, mesic Typic Paleudalfs
Haymond	Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Hosmer	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Jacob	Very fine, smectitic, acid, mesic Vertic Endoaquepts
Karnak	Fine, smectitic, nonacid, mesic Vertic Endoaquepts
*Medway	Fine-loamy, mixed, superactive, mesic Fluvaquentic Hapludolls
Menfro	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Neotoma	Loamy-skeletal, mixed, active, mesic Ultic Hapludalfs
Orthents, loamy	Fine-loamy, mixed, active, nonacid, mesic Typic Udorthents
Orthents, silty	Fine-silty, mixed, superactive, nonacid, mesic Aquic Udorthents
Petrolia	Fine-silty, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts
Piopolis	Fine-silty, mixed, active, acid, mesic Typic Fluvaquents
*Sarpy	Mixed, mesic Typic Udipsamments
Stoy	Fine-silty, mixed, superactive, mesic Fragiaquic Hapludalfs
Tice	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Wakeland	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents
*Ware	Coarse-loamy, mixed, active, thermic Fluventic Hapludolls
Wellston	Fine-silty, mixed, active, mesic Ultic Hapludalfs
Westmore	Fine-silty, mixed, active, mesic Typic Hapludalfs
Winfield	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Zanesville	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

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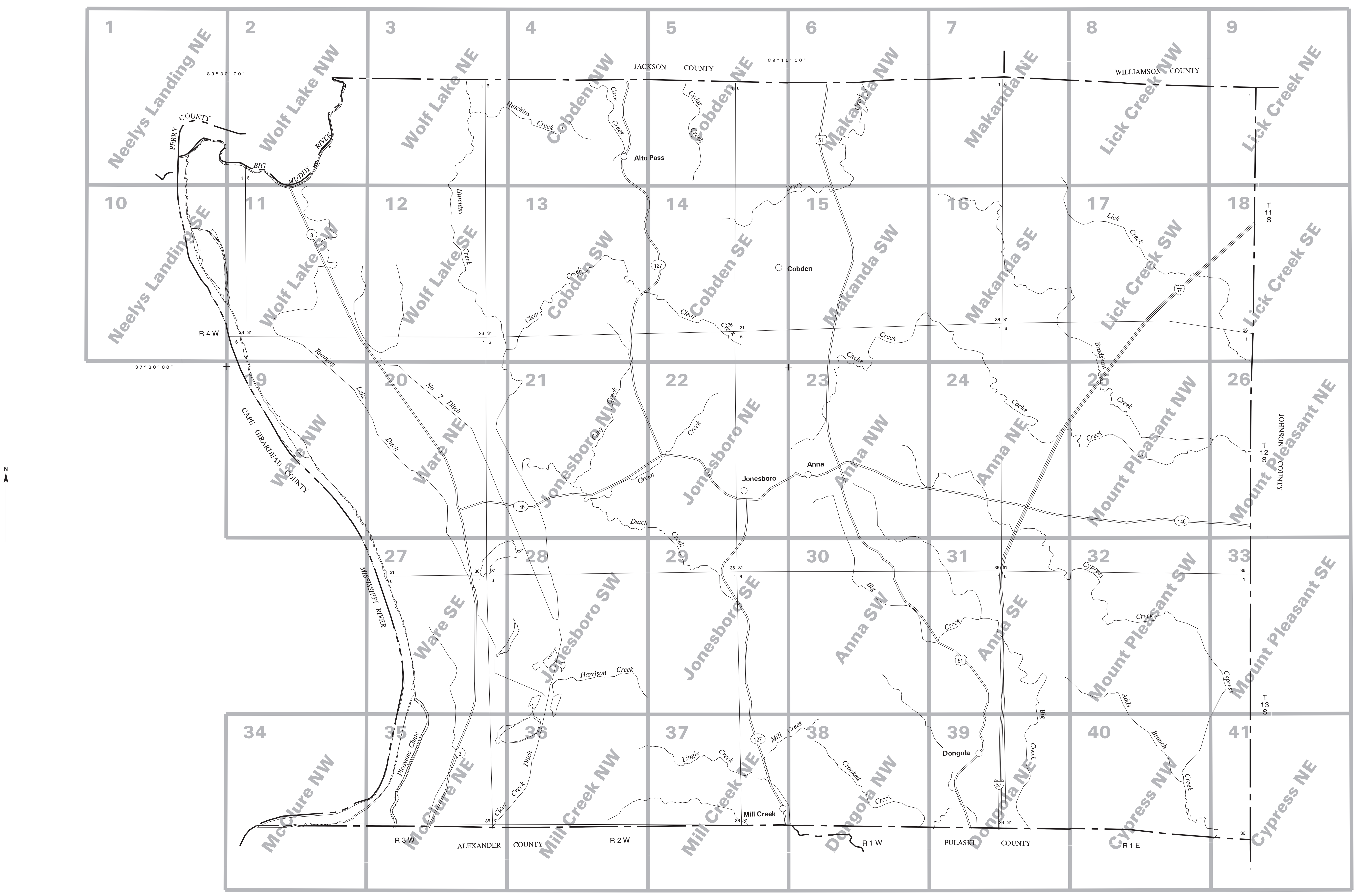

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

INDEX TO MAP SHEETS

UNION COUNTY,
ILLINOIS

MILES

KILOMETERS

SCALE = 1:100000

SOIL LEGEND

Most map unit symbols consist of a combination of numbers and letters. The initial numbers represent the kind of soil. A capital letter following these numbers indicates the class of slope, except for the letter "L", which indicates flooding of long duration. A final number of 2 following the slope letter indicates that the soil is moderately eroded, and a number 3 indicates that the soil is severely eroded. Absence of a number following the slope class indicates that the soil is slightly eroded or not eroded. Three digit symbols without a slope letter are for miscellaneous areas. Water areas are identified by "W", and miscellaneous water areas are identified by "MW".

SYMBOL	NAME
75B	Drury silt loam, 2 to 5 percent slopes
75C	Drury silt loam, 5 to 10 percent slopes
75C3	Drury silt loam, 5 to 10 percent slopes, severely eroded
75D	Drury silt loam, 10 to 18 percent slopes
79B	Menfro silt loam, 2 to 5 percent slopes
79C2	Menfro silt loam, 5 to 10 percent slopes, eroded
79C3	Menfro silt loam, 5 to 10 percent slopes, severely eroded
79D2	Menfro silt loam, 10 to 18 percent slopes, eroded
79D3	Menfro silt loam, 10 to 18 percent slopes, severely eroded
79E	Menfro silt loam, 18 to 25 percent slopes
79E2	Menfro silt loam, 18 to 25 percent slopes, eroded
79E3	Menfro silt loam, 18 to 25 percent slopes, severely eroded
79F	Menfro silt loam, 25 to 35 percent slopes
99G	Sandstone and limestone rock land, 35 to 90 percent slopes
164A	Stoy silt loam, 0 to 2 percent slopes
164B	Stoy silt loam, 2 to 5 percent slopes
214B	Hosmer silt loam, 2 to 5 percent slopes
214C2	Hosmer silt loam, 5 to 10 percent slopes, eroded
214C3	Hosmer silt loam, 5 to 10 percent slopes, severely eroded
214D2	Hosmer silt loam, 10 to 18 percent slopes, eroded
214D3	Hosmer silt loam, 10 to 18 percent slopes, severely eroded
477B	Winfield silt loam, 2 to 5 percent slopes
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded
477C3	Winfield silt loam, 5 to 10 percent slopes, severely eroded
477D2	Winfield silt loam, 10 to 18 percent slopes, eroded
477D3	Winfield silt loam, 10 to 18 percent slopes, severely eroded
692D	Menfro-Wellston silt loams, 10 to 18 percent slopes
692D2	Menfro-Wellston silt loams, 10 to 18 percent slopes, eroded
692F	Menfro-Wellston silt loams, 18 to 35 percent slopes
694D	Menfro-Baxter complex, 10 to 18 percent slopes
694D2	Menfro-Baxter complex, 10 to 18 percent slopes, eroded
694F	Menfro-Baxter complex, 18 to 35 percent slopes
801B	Orthents, silty, undulating
802D	Orthents, loamy, hilly
832F	Menfro-Clarksville complex, 18 to 35 percent slopes
832G	Clarksville-Menfro complex, 35 to 70 percent slopes
833F	Menfro-Goss complex, 18 to 35 percent slopes
833G	Goss-Menfro complex, 35 to 70 percent slopes
834F	Wellston-Westmore silt loams, 18 to 35 percent slopes
834G	Wellston-Westmore silt loams, 35 to 70 percent slopes
864	Pits, quarries
940D	Zanesville-Westmore silt loams, 10 to 18 percent slopes
940D2	Zanesville-Westmore silt loams, 10 to 18 percent slopes, eroded
977F	Wellston-Neotoma complex, 18 to 35 percent slopes

SYMBOL	NAME
977G	Wellston-Neotoma complex, 35 to 70 percent slopes
1334A	Birds silt loam, undrained, 0 to 2 percent slopes, frequently flooded
1426A	Karnak silty clay, undrained, 0 to 2 percent slopes, frequently flooded
3071A	Darwin silty clay, 0 to 2 percent slopes, frequently flooded
3071L	Darwin silty clay, 0 to 2 percent slopes, frequently flooded, long duration
3092BL	Sarpy loamy fine sand, 1 to 8 percent slopes, frequently flooded, long duration
3162L	Gorham silty clay loam, 0 to 3 percent slopes, frequently flooded, long duration
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded
3288A	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded
3331A	Haymond silt loam, 0 to 3 percent slopes, frequently flooded
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded
3334A	Birds silt loam, 0 to 2 percent slopes, frequently flooded
3426A	Karnak silty clay, 0 to 2 percent slopes, frequently flooded
3456B	Ware fine sandy loam, 1 to 6 percent slopes, frequently flooded
3590L	Cairo silty clay, 0 to 2 percent slopes, frequently flooded, long duration
3682BL	Medway silty clay loam, 1 to 6 percent slopes, frequently flooded, long duration
5079B2	Menfro silt loam, karst, 2 to 5 percent slopes, eroded
5079C3	Menfro silt loam, karst, 5 to 10 percent slopes, severely eroded
5079D3	Menfro silt loam, karst, 10 to 18 percent slopes, severely eroded
5079E3	Menfro silt loam, karst, 18 to 25 percent slopes, severely eroded
5214B2	Hosmer silt loam, karst, 2 to 5 percent slopes, eroded
5214C3	Hosmer silt loam, karst, 5 to 10 percent slopes, severely eroded
5214D3	Hosmer silt loam, karst, 10 to 18 percent slopes, severely eroded
8071A	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded
8085A	Jacob silty clay, 0 to 2 percent slopes, occasionally flooded
8092B	Sarpy loamy fine sand, 1 to 8 percent slopes, occasionally flooded
8162A	Gorham silty clay loam, 0 to 3 percent slopes, occasionally flooded
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
8284A	Tice silty clay loam, 0 to 2 percent slopes, occasionally flooded
8331A	Haymond silt loam, 0 to 3 percent slopes, occasionally flooded
8333A	Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded
8334A	Birds silt loam, 0 to 2 percent slopes, occasionally flooded
8420A	Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded
8422A	Cape silty clay loam, 0 to 2 percent slopes, occasionally flooded
8426A	Karnak silty clay, 0 to 2 percent slopes, occasionally flooded
8427B	Burnside silt loam, 1 to 4 percent slopes, occasionally flooded
8456B	Ware loam, 1 to 6 percent slopes, occasionally flooded
8475B	Elsah silt loam, 1 to 4 percent slopes, occasionally flooded
8589B	Bowdre silty clay, 1 to 6 percent slopes, occasionally flooded
8590A	Cairo silty clay, 0 to 2 percent slopes, occasionally flooded
8682B	Medway silty clay loam, 1 to 6 percent slopes, occasionally flooded
8787A	Banlic silt loam, 0 to 2 percent slopes, occasionally flooded
MW	Miscellaneous water
W	Water

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline & neatline
- Previously Published Survey

OTHER BOUNDARY (label)

- Airport, airfield
- Cemetery
- City/county park

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER (section and land grants)

GEOGRAPHIC COORDINATE TICK

TRANSPORTATION

- Divided roads
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate — 173 — 79 345
- Federal — 287 — 410 224
- State — 52 — 52 347
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad
- Single side slope (showing actual feature location)

DAMS

- Medium or Small

LANDFORM FEATURES

- Prominent hill or peak
- Soil Sample Site

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Other Religion (label) — Mt Carmel
- Located object (label) — Ranger Station
- Tank (label) — Petroleum
- Lookout Tower
- Oil and/or Natural Gas Wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS

- Perennial, double line
- Perennial, single line — Label Only
- Intermittent — Label Only
- Drainage end — Label Only

DRAINAGE AND IRRIGATION

- Double-line canal (label) — CANAL
- Perennial drainage and/or irrigation ditch — Label Only
- Intermittent drainage and/ or irrigation ditch — Label Only

SMALL LAKES, PONDS AND RESERVOIRS

- Perennial water
- Miscellaneous water
- Flood pool line — FLOOD POOL LINE

MISCELLANEOUS WATER FEATURES

- Spring
- Well, artesian
- Well, irrigation

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS — 1334A 8334A

LANDFORM FEATURES

ESCARPMENTS

- Bedrock
- Other than bedrock

SHORT STEEP SLOPE

GULLY

DEPRESSION, closed

SINKHOLE

EXCAVATIONS

PITS

- Borrow pits
- Gravel pit
- Mine or quarry

LANDFILL

MISCELLANEOUS SURFACE FEATURES

- Blowout
- Clay spot
- Gravelly spot
- Lava flow
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
NEELYS LANDING NE QUADRANGLE
SHEET NUMBER 1 OF 41

89° 33′45″ | 89° 30′00″ | 37° 37′30″ | 37° 33′45″

R. 4 W.

SCALE 1:12000

MILES | FEET | KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

1 ALTENBURG SW
2 ALTENBURG SE
3 GORHAM SW
4 NEELYS LANDING NW
5 WOLF LAKE NW (SHEET 2)
6 NEELYS LANDING SW
7 NEELYS LANDING SE (SHEET 10)
8 WOLF LAKE SW (SHEET 11)

INDEX TO ADJOINING 3.75 MAPS

NEELYS LANDING NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 1 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
WOLF LAKE NW QUADRANGLE
SHEET NUMBER 2 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

1	2	3
4		5
6	7	8

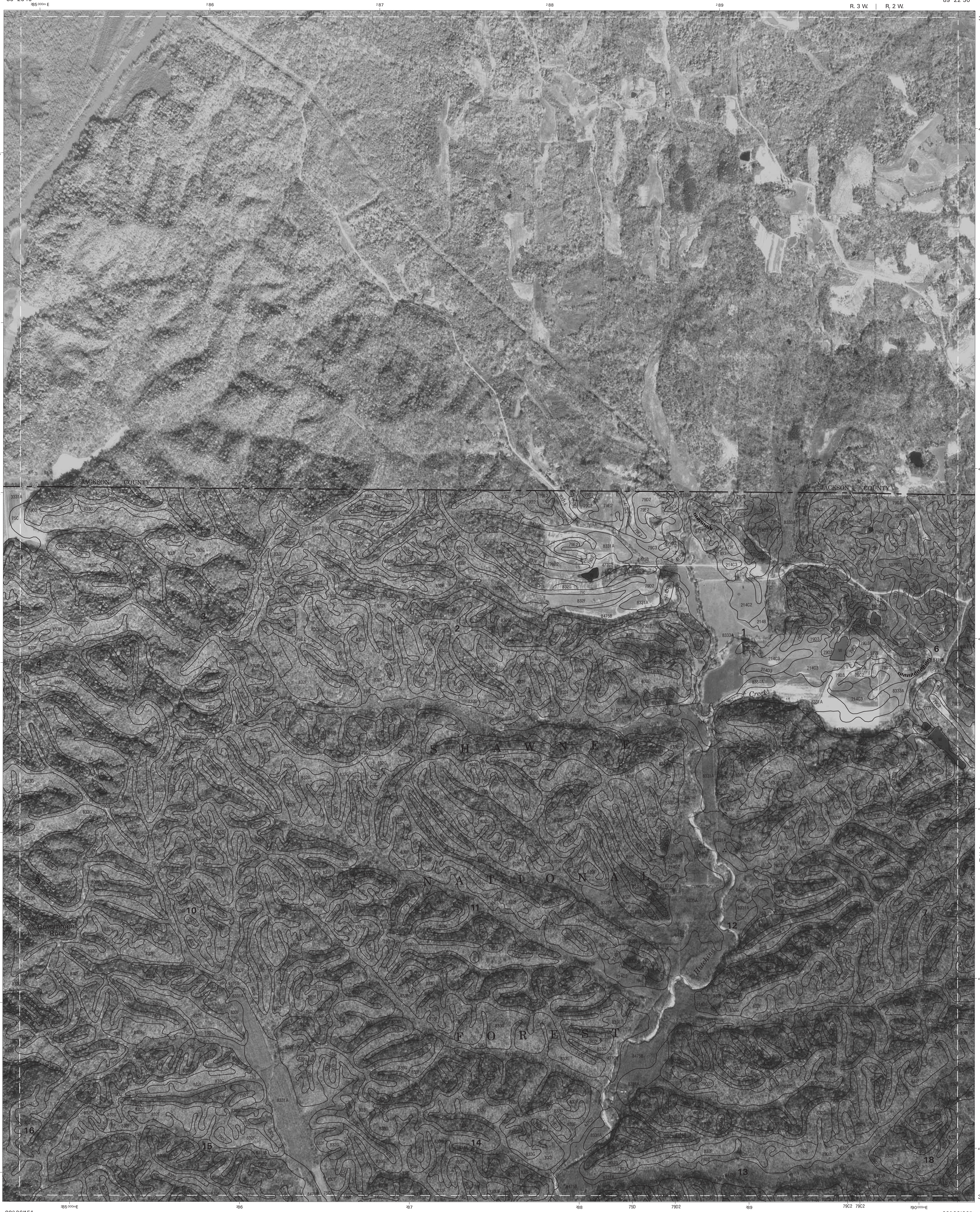
1 ALTENBURG SE
2 GORHAM SW
3 GORHAM SE
4 NEELYS LANDING NE (SHEET 1)
5 WOLF LAKE NE (SHEET 3)
6 NEELYS LANDING SE (SHEET 10)
7 WOLF LAKE SW (SHEET 11)
8 WOLF LAKE SE (SHEET 12)

INDEX TO ADJOINING 3.75 MAPS

WOLF LAKE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 41

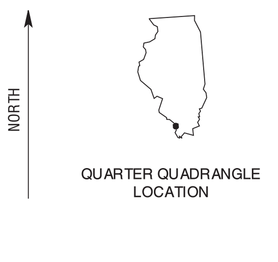
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
WOLF LAKE NE QUADRANGLE
SHEET NUMBER 3 OF 41



SCALE 1:12000

MILES
FEET
KILOMETERS



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1 GORHAM SW
2 GORHAM SE
3 POMONA SW
4 WOLF LAKE NW (SHEET 2)
5 COBDEN NW (SHEET 4)
6 WOLF LAKE SW (SHEET 11)
7 WOLF LAKE SE (SHEET 12)
8 COBDEN SW (SHEET 13)

INDEX TO ADJOINING 3.75 MAPS

WOLF LAKE NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 3 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
COBDEN NW QUADRANGLE
SHEET NUMBER 4 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 GORHAM SE
2 POMONA SW
3 POMONA SE
4 WOLF LAKE NE (SHEET 3)
5 COBDEN NE (SHEET 5)
6 WOLF LAKE SE (SHEET 12)
7 COBDEN SW (SHEET 13)
8 COBDEN SE (SHEET 14)

INDEX TO ADJOINING 3.75 MAPS

COBDEN NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 4 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
COBDEN NE QUADRANGLE
SHEET NUMBER 5 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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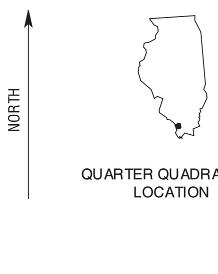
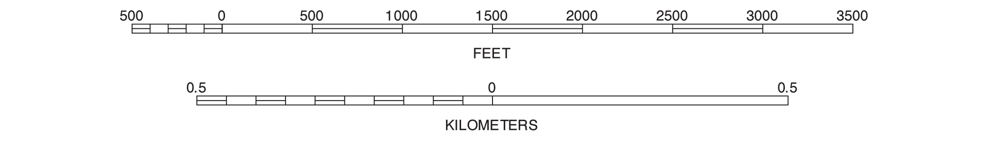


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 POMONA SW
2 POMONA SE
3 CARBONDALE SW
4 COBDEN NW (SHEET 4)
5 MAKANDA NW (SHEET 6)
6 COBDEN SW (SHEET 13)
7 COBDEN SE (SHEET 14)
8 MAKANDA SW (SHEET 15)

INDEX TO ADJOINING 3.75 MAPS

COBDEN NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MAKANDA NW QUADRANGLE
SHEET NUMBER 6 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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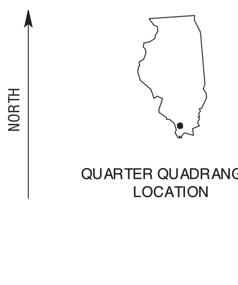
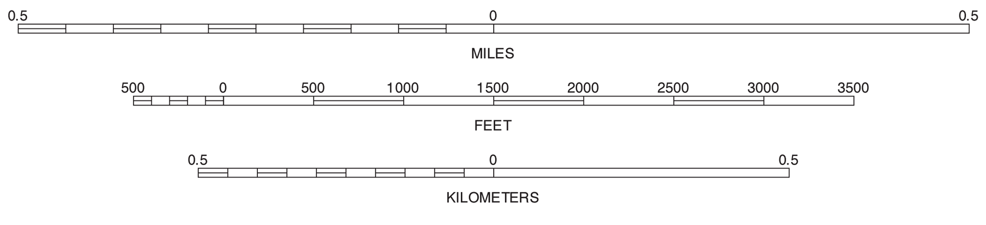


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 POMONA SE
2 CARBONDALE SW
3 CARBONDALE SE
4 COBDEN NE (SHEET 5)
5 MAKANDA NE (SHEET 7)
6 COBDEN SE (SHEET 14)
7 MAKANDA SW (SHEET 15)
8 MAKANDA SE (SHEET 16)

INDEX TO ADJOINING 3.75 MAPS

MAKANDA NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 6 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MAKANDA NE QUADRANGLE
SHEET NUMBER 7 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 CARBONDALE SW
2 CARBONDALE SE
3 CRAB ORCHARD LAKE SW
4 MAKANDA NW (SHEET 6)
5 LICK CREEK NW (SHEET 8)
6 MAKANDA SW (SHEET 15)
7 MAKANDA SE (SHEET 16)
8 LICK CREEK SW (SHEET 17)

INDEX TO ADJOINING 3.75 MAPS

MAKANDA NE, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 7 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
LICK CREEK NW QUADRANGLE
SHEET NUMBER 8 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 CARBONDALE SE
2 CRAB ORCHARD LAKE SW
3 CRAB ORCHARD LAKE SE
4 MAKANDA NE (SHEET 7)
5 LICK CREEK NE (SHEET 9)
6 MAKANDA SE (SHEET 16)
7 LICK CREEK SW (SHEET 17)
8 LICK CREEK SE (SHEET 18)

INDEX TO ADJOINING 3.75 MAPS

LICK CREEK NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 8 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
LICK CREEK NE QUADRANGLE
SHEET NUMBER 9 OF 42

89° 03′45″ 89° 00′00″

37° 37′30″ 37° 37′30″

37° 33′45″ 37° 33′45″

³18 000mE R. 1 E. ³19 ³20 ³21 ³22 ³23 000mE

89° 03′45″ 89° 00′00″

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Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.
Hydrography was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 CRAB ORCHARD LAKE SW
2 CRAB ORCHARD LAKE SE
3 MARION SW
4 LICK CREEK NW (SHEET 8)
5 GOREVILLE NW
6 LICK CREEK SW (SHEET 17)
7 LICK CREEK SE (SHEET 18)
8 GOREVILLE SW

INDEX TO ADJOINING 3.75 MAPS

LICK CREEK NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 9 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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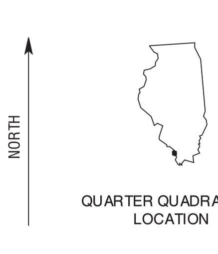
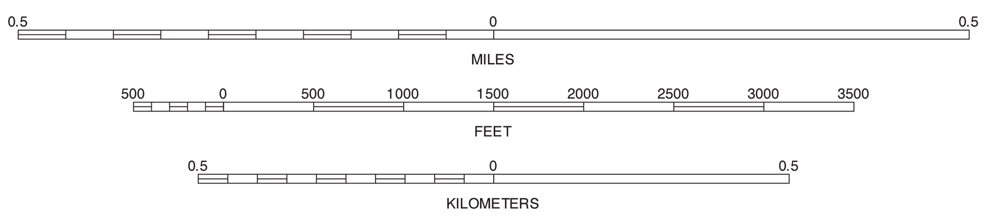


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 NEELYS LANDING NW
2 NEELYS LANDING NE (SHEET 1)
3 WOLF LAKE NW (SHEET 2)
4 NEELYS LANDING SW
5 WOLF LAKE SW (SHEET 11)
6 CAPE GIRARDEAU NE NW
7 CAPE GIRARDEAU NE NE
8 WARE NW (SHEET 19)

INDEX TO ADJOINING 3.75 MAPS

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
WOLF LAKE SW QUADRANGLE
SHEET NUMBER 11 OF 42

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

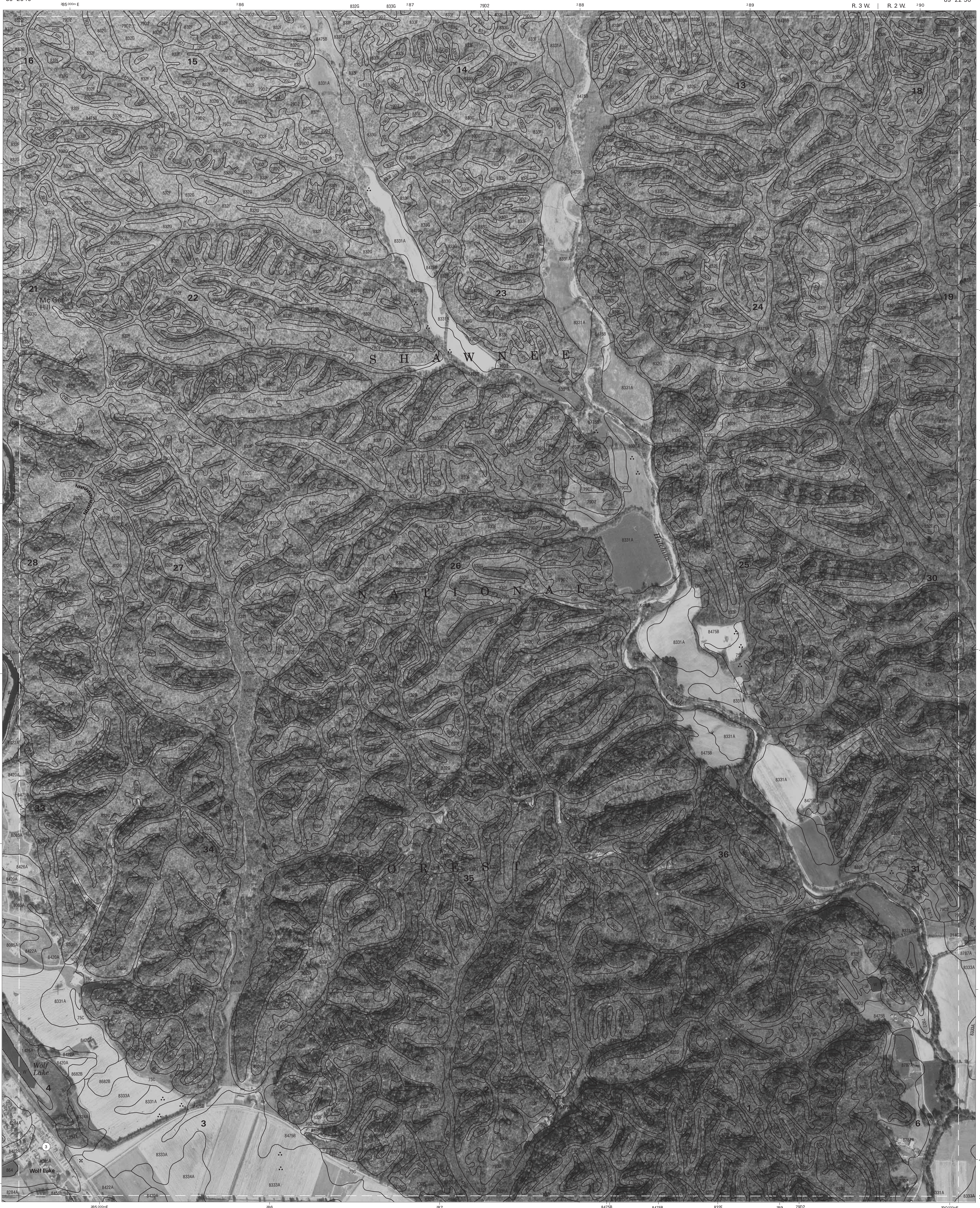
1 NEELYS LANDING NE (SHEET 1)
2 WOLF LAKE NW (SHEET 2)
3 WOLF LAKE NE (SHEET 3)
4 NEELYS LANDING SE (SHEET 10)
5 WOLF LAKE SE (SHEET 12)
6 CAPE GIRARDEAU NE NE
7 WARE NW (SHEET 19)
8 WARE NE (SHEET 20)

INDEX TO ADJOINING 3.75 MAPS

WOLF LAKE SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 11 OF 42

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
WOLF LAKE SE QUADRANGLE
SHEET NUMBER 12 OF 41



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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

1	2	3
4		5
6	7	8

1 WOLF LAKE NW (SHEET 2)
2 WOLF LAKE NE (SHEET 3)
3 COBDEN NW (SHEET 4)
4 WOLF LAKE SW (SHEET 11)
5 COBDEN SW (SHEET 13)
6 WARE NW (SHEET 19)
7 WARE NE (SHEET 20)
8 JONESBORO NW (SHEET 21)

INDEX TO ADJOINING 3.75 MAPS

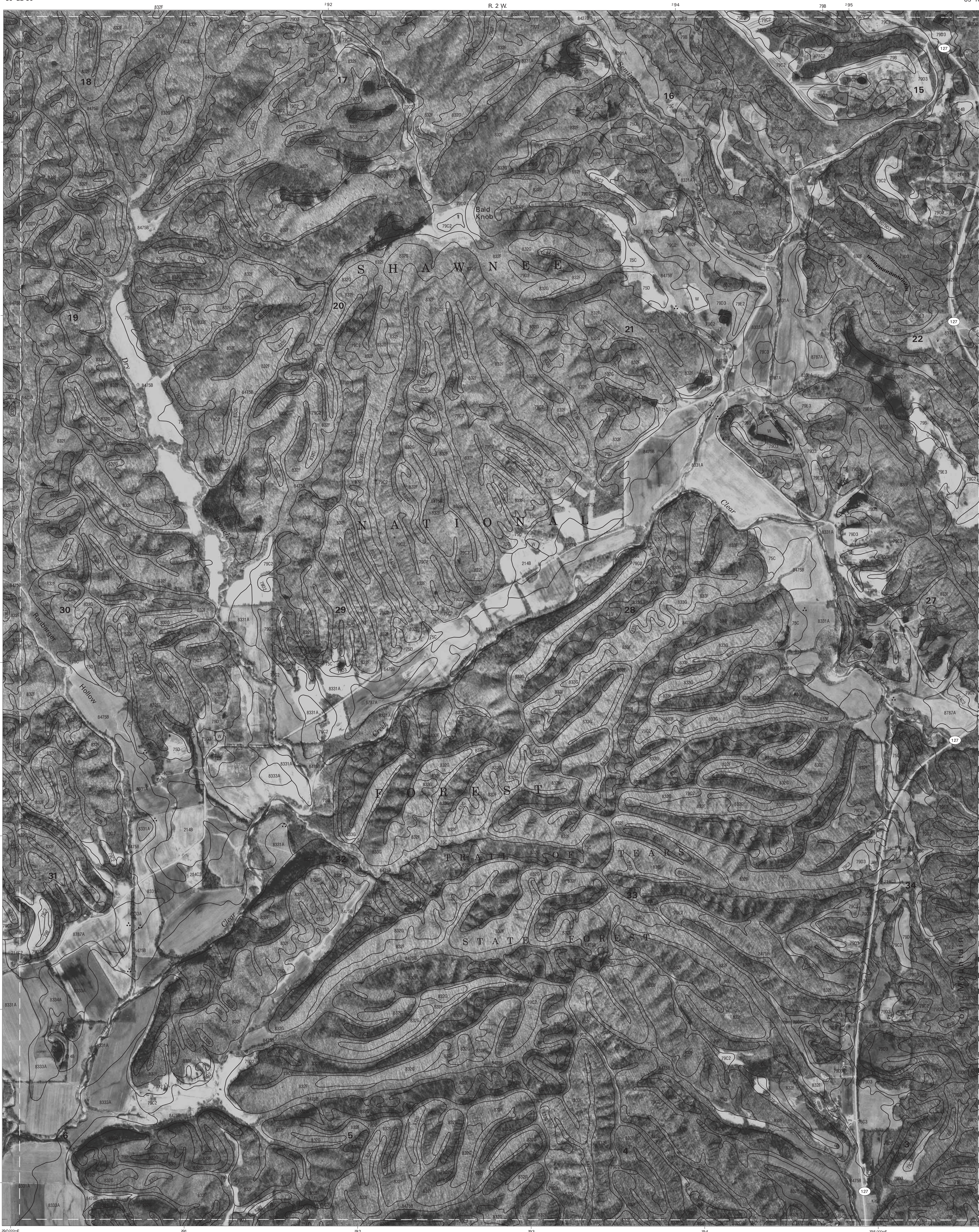
WOLF LAKE SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 12 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
COBDEN SW QUADRANGLE
SHEET NUMBER 13 OF 41

89° 22′30″ — R. 2 W. — 89°18′45″

37° 33′45″



37° 30′00″

89° 22′30″ — 89°18′45″

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 WOLF LAKE NE (SHEET 3)
2 COBDEN NW (SHEET 4)
3 COBDEN NE (SHEET 5)
4 WOLF LAKE SE (SHEET 12)
5 COBDEN SE (SHEET 14)
6 WARE NE (SHEET 20)
7 JONESBORO NW (SHEET 21)
8 JONESBORO NE (SHEET 22)

INDEX TO ADJOINING 3.75 MAPS

COBDEN SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
COBDEN SE QUADRANGLE
SHEET NUMBER 14 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

1	2	3
4		5
6	7	8

1 COBDEN NW (SHEET 4)
2 COBDEN NE (SHEET 5)
3 MAKANDA NW (SHEET 6)
4 COBDEN SW (SHEET 13)
5 MAKANDA SW (SHEET 15)
6 JONESBORO NW (SHEET 21)
7 JONESBORO NE (SHEET 22)
8 ANNA NW (SHEET 23)

INDEX TO ADJOINING 3.75 MAPS

COBDEN SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MAKANDA SW QUADRANGLE
SHEET NUMBER 15 OF 41

89°15′00″ 89°11′15″

37°33′45″ 37°33′45″

37°30′00″ 37°30′00″

89°15′00″ 89°11′15″

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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1 COBDEN NE (SHEET 5)
2 MAKANDA NW (SHEET 6)
3 MAKANDA NE (SHEET 7)
4 COBDEN SE (SHEET 14)
5 MAKANDA SE (SHEET 16)
6 JONESBORO NE (SHEET 22)
7 ANNA NW (SHEET 23)
8 ANNA NE (SHEET 24)

INDEX TO ADJOINING 3.75 MAPS

MAKANDA SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 15 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MAKANDA SE QUADRANGLE
SHEET NUMBER 16 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
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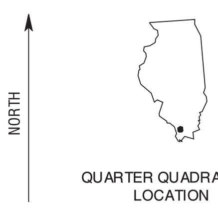
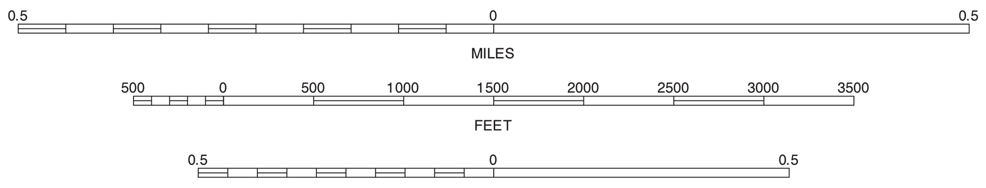


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



1	2	3
4		5
6	7	8

1 MAKANDA NW (SHEET 6)
2 MAKANDA NE (SHEET 7)
3 LICK CREEK NW (SHEET 8)
4 MAKANDA SW (SHEET 15)
5 LICK CREEK SW (SHEET 17)
6 ANNA NW (SHEET 23)
7 ANNA NE (SHEET 24)
8 MOUNT PLEASANT NW (SHEET 25)

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MAKANDA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 16 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
LICK CREEK SW QUADRANGLE
SHEET NUMBER 17 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 MAKANDA NE (SHEET 7)
2 LICK CREEK NW (SHEET 8)
3 LICK CREEK NE (SHEET 9)
4 MAKANDA SE (SHEET 16)
5 LICK CREEK SE (SHEET 18)
6 ANNA NE (SHEET 24)
7 MOUNT PLEASANT NW (SHEET 25)
8 MOUNT PLEASANT NE (SHEET 26)

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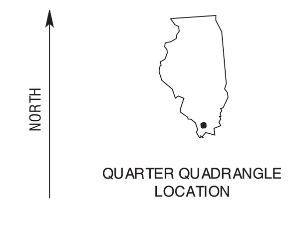
LICK CREEK SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

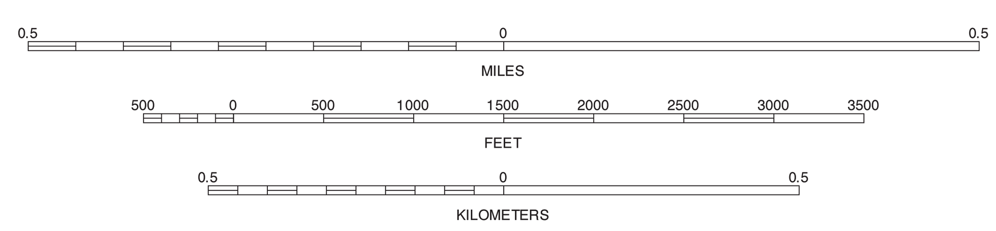
UNION COUNTY, ILLINOIS
LICK CREEK SE QUADRANGLE
SHEET NUMBER 18 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.



SCALE 1:12000



1	2	3
4		5
6	7	8

1 LICK CREEK NW (SHEET 8)
2 LICK CREEK NE (SHEET 9)
3 GOREVILLE NW
4 LICK CREEK SW (SHEET 17)
5 GOREVILLE SW
6 MOUNT PLEASANT NW (SHEET 25)
7 MOUNT PLEASANT NE (SHEET 26)
8 VIENNA NW

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LICK CREEK SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 18 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
WARE NW QUADRANGLE
SHEET NUMBER 19 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

1	2	3
4		5
6	7	8

1 NEELYS LANDING SE (SHEET 10)
2 WOLF LAKE SW (SHEET 11)
3 WOLF LAKE SE (SHEET 12)
4 CAPE GIRARDEAU NE NE
5 WARE NE (SHEET 20)
6 CAPE GIRARDEAU NE SE
7 WARE SW
8 WARE SE (SHEET 27)

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WARE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 19 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
WARE NE QUADRANGLE
SHEET NUMBER 20 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 WOLF LAKE SW (SHEET 11)
2 WOLF LAKE SE (SHEET 12)
3 COBDEN SW (SHEET 13)
4 WARE NW (SHEET 19)
5 JONESBORO NW (SHEET 21)
6 WARE SW
7 WARE SE (SHEET 27)
8 JONESBORO SW (SHEET 28)

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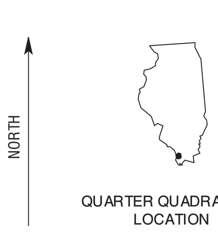
3.75 MINUTE SERIES
SHEET NUMBER 20 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
JONESBORO NW QUADRANGLE
SHEET NUMBER 21 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 WOLF LAKE SE (SHEET 12)
2 COBDEN SW (SHEET 13)
3 COBDEN SE (SHEET 14)
4 WARE NE (SHEET 20)
5 JONESBORO NE (SHEET 22)
6 WARE SE (SHEET 27)
7 JONESBORO SW (SHEET 28)
8 JONESBORO SE (SHEET 29)

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JONESBORO NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 21 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
JONESBORO NE QUADRANGLE
SHEET NUMBER 22 OF 41

SCALE 1:12000

MILES

FEET

KILOMETERS

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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

1 COBDEN SW (SHEET 13)
2 COBDEN SE (SHEET 14)
3 MAKANDA SW (SHEET 15)
4 JONESBORO NW (SHEET 21)
5 ANNA NW (SHEET 23)
6 JONESBORO SW (SHEET 28)
7 JONESBORO SE (SHEET 29)
8 ANNA SW (SHEET 30)

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JONESBORO NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 22 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
ANNA NW QUADRANGLE
SHEET NUMBER 23 OF 41

SCALE 1:12000

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

1	2	3
4		5
6	7	8

1 COBDEN SE (SHEET 14)
2 MAKANDA SW (SHEET 15)
3 MAKANDA SE (SHEET 16)
4 JONESBORO NE (SHEET 22)
5 ANNA NE (SHEET 24)
6 JONESBORO SE (SHEET 29)
7 ANNA SW (SHEET 30)
8 ANNA SE (SHEET 31)

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ANNA NW, ILLINOIS
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SHEET NUMBER 23 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
ANNA NE QUADRANGLE
SHEET NUMBER 24 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
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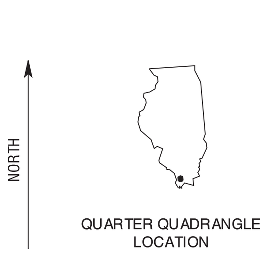

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES 0.5 – 0 – 0.5

FEET 500 – 0 – 500 – 1000 – 1500 – 2000 – 2500 – 3000 – 3500

KILOMETERS 0.5 – 0 – 0.5

1	2	3
4		5
6	7	8

1 MAKANDA SW (SHEET 15)
2 MAKANDA SE (SHEET 16)
3 LICK CREEK SW (SHEET 17)
4 ANNA NW (SHEET 23)
5 MOUNT PLEASANT NW (SHEET 25)
6 ANNA SW (SHEET 30)
7 ANNA SE (SHEET 31)
8 MOUNT PLEASANT SW (SHEET 32)

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ANNA NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 24 OF 41

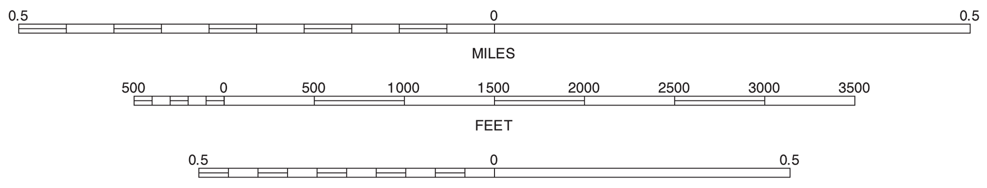
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MOUNT PLEASANT NW QUADRANGLE
SHEET NUMBER 25 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

SCALE 1:12000



1	2	3
4		5
6	7	8

1 MAKANDA SE (SHEET 16)
2 LICK CREEK SW (SHEET 17)
3 LICK CREEK SE (SHEET 18)
4 ANNA NE (SHEET 24)
5 MOUNT PLEASANT NE (SHEET 26)
6 ANNA SE (SHEET 31)
7 MOUNT PLEASANT SW (SHEET 32)
8 MOUNT PLEASANT SE (SHEET 33)

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MOUNT PLEASANT NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 25 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MOUNT PLEASANT NE QUADRANGLE
SHEET NUMBER 26 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 LICK CREEK SW (SHEET 17)
2 LICK CREEK SE (SHEET 18)
3 GOREVILLE SW
4 MOUNT PLEASANT NW (SHEET 25)
5 VIENNA NW
6 MOUNT PLEASANT SW (SHEET 32)
7 MOUNT PLEASANT SE (SHEET 33)
8 VIENNA SW

INDEX TO ADJOINING 3.75 MAPS

MOUNT PLEASANT NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 26 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
WARE SE QUADRANGLE
SHEET NUMBER 27 OF 41

SCALE 1:12000

MILES

FEET

KILOMETERS

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE
LOCATION

1	2	3
4		5
6	7	8

1 WARE NW (SHEET 19)
2 WARE NE (SHEET 20)
3 JONESBORO NW (SHEET 21)
4 WARE SW
5 JONESBORO SW (SHEET 28)
6 MCCLURE NW (SHEET 34)
7 MCCLURE NE (SHEET 35)
8 MILL CREEK NW (SHEET 36)

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WARE SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 27 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
JONESBORO SW QUADRANGLE
SHEET NUMBER 28 OF 41

89° 22′30″ 37° 26′15″ 89°18′45″ 37° 22′30″

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

1	2	3
4		5
6	7	8

1 WARE NE (SHEET 20)
2 JONESBORO NW (SHEET 21)
3 JONESBORO NE (SHEET 22)
4 WARE SE (SHEET 27)
5 JONESBORO SE (SHEET 29)
6 MCCLURE NE (SHEET 35)
7 MILL CREEK NW (SHEET 36)
8 MILL CREEK NE (SHEET 37)

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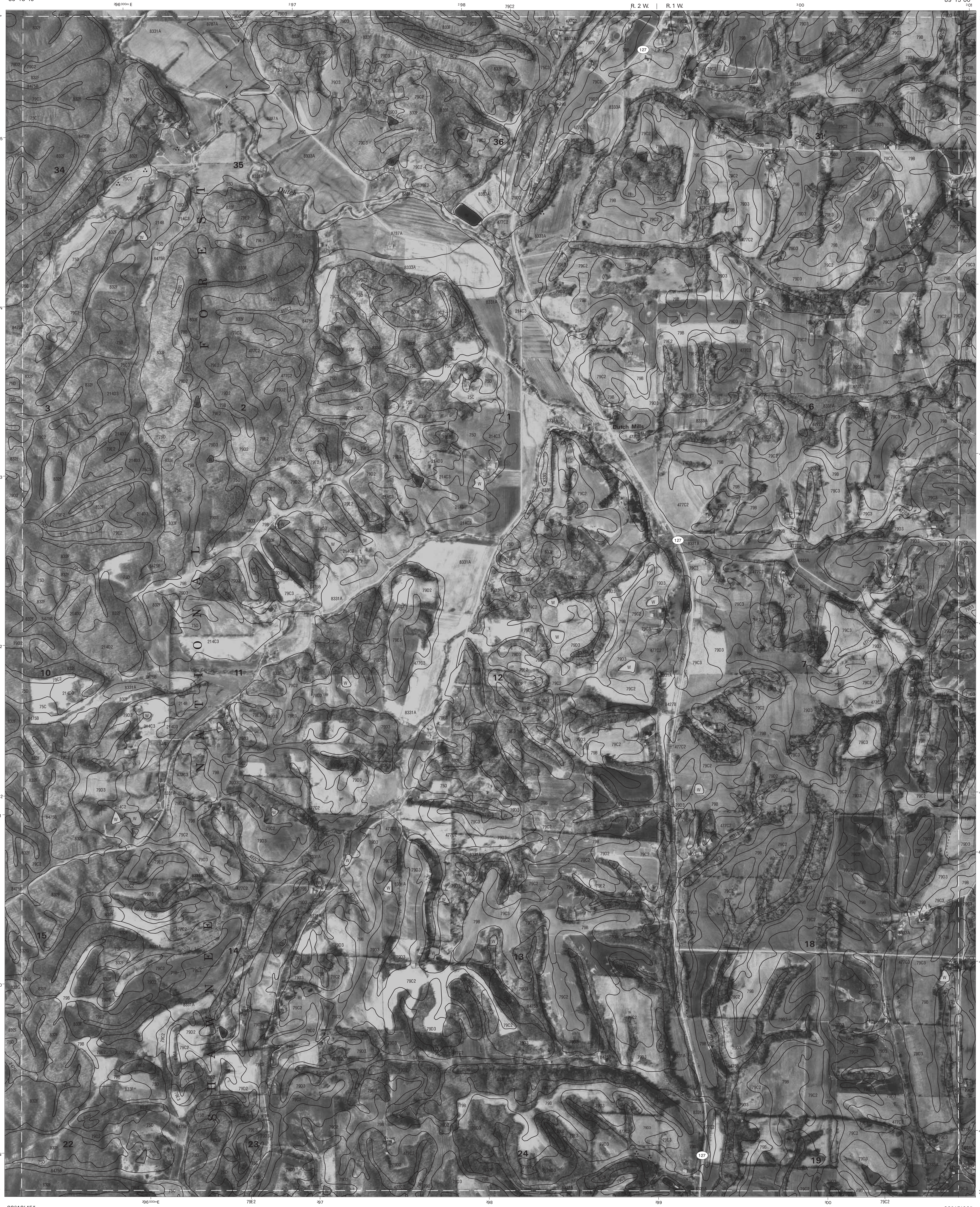
JONESBORO SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 28 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
JONESBORO SE QUADRANGLE
SHEET NUMBER 29 OF 41



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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 JONESBORO NW (SHEET 21)
2 JONESBORO NE (SHEET 22)
3 ANNA NW (SHEET 23)
4 JONESBORO SW (SHEET 28)
5 ANNA SW (SHEET 30)
6 MILL CREEK NW (SHEET 36)
7 MILL CREEK NE (SHEET 37)
8 DONGOLA NW (SHEET 38)

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JONESBORO SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 29 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
ANNA SW QUADRANGLE
SHEET NUMBER 30 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 JONESBORO NE (SHEET 22)
2 ANNA NW (SHEET 23)
3 ANNA NE (SHEET 24)
4 JONESBORO SE (SHEET 29)
5 ANNA SE (SHEET 31)
6 MILL CREEK NE (SHEET 37)
7 DONGOLA NW (SHEET 38)
8 DONGOLA NE (SHEET 39)

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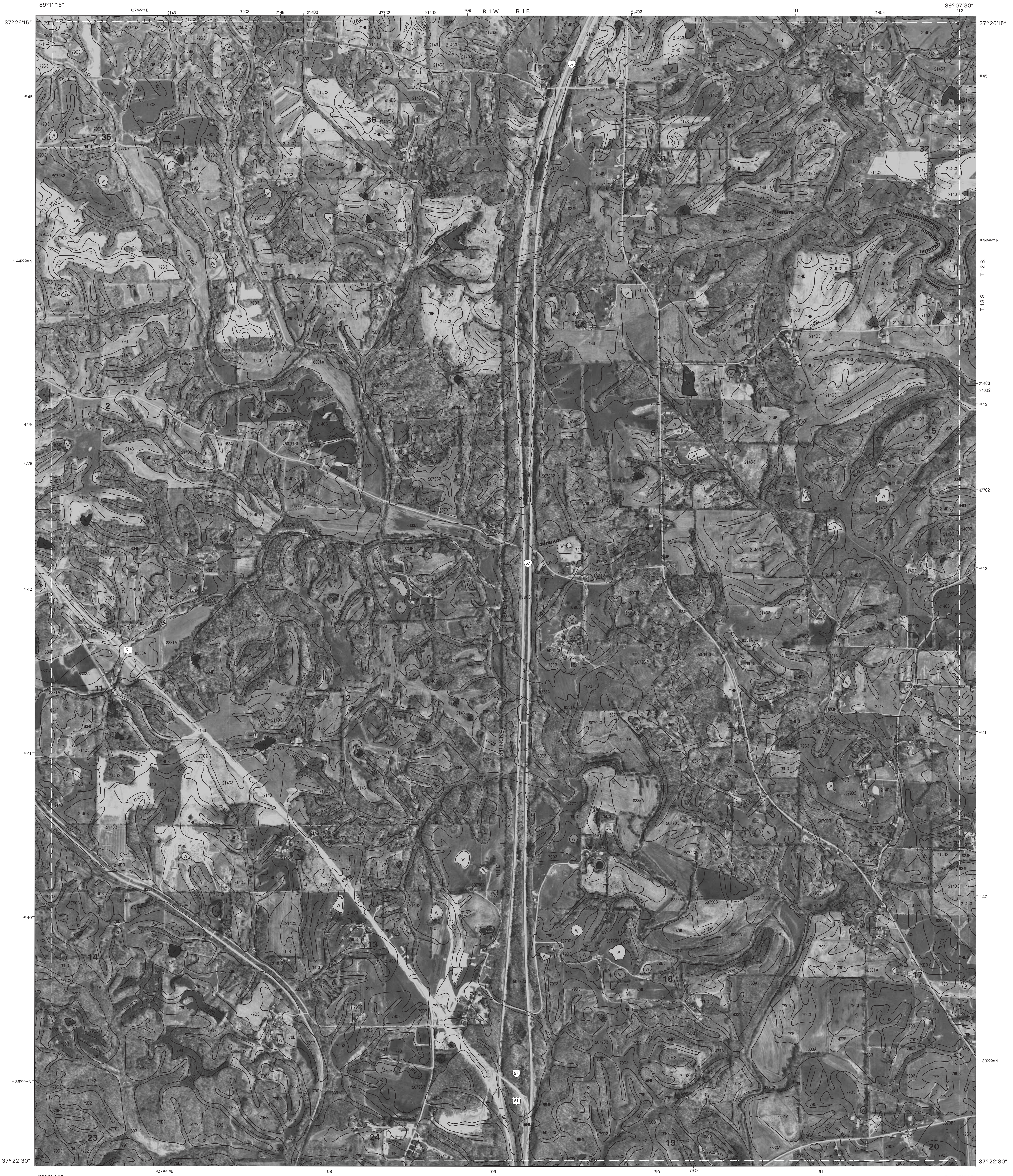
ANNA SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 30 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
ANNA SE QUADRANGLE
SHEET NUMBER 31 OF 41



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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 ANNA NW (SHEET 23)
2 ANNA NE (SHEET 24)
3 MOUNT PLEASANT NW (SHEET 25)
4 ANNA SW (SHEET 30)
5 MOUNT PLEASANT SW (SHEET 32)
6 DONGOLA NW (SHEET 38)
7 DONGOLA NE (SHEET 39)
8 CYPRESS NW (SHEET 40)

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ANNA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 31 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MOUNT PLEASANT SW QUADRANGLE
SHEET NUMBER 32 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

1	2	3
4		5
6	7	8

1 ANNA NE (SHEET 24)
2 MOUNT PLEASANT NW (SHEET 25)
3 MOUNT PLEASANT NE (SHEET 26)
4 ANNA SE (SHEET 31)
5 MOUNT PLEASANT SE (SHEET 32)
6 DONGOLA NE (SHEET 39)
7 CYPRESS NW (SHEET 40)
8 CYPRESS NE (SHEET 41)

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MOUNT PLEASANT SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 32 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 MOUNT PLEASANT NW (SHEET 25)
2 MOUNT PLEASANT NE (SHEET 26)
3 VIENNA NW
4 MOUNT PLEASANT SW (SHEET 32)
5 VIENNA SW
6 CYPRESS NW (SHEET 40)
7 CYPRESS NE (SHEET 41)
8 KARNAK NW

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MOUNT PLEASANT SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 33 OF 41

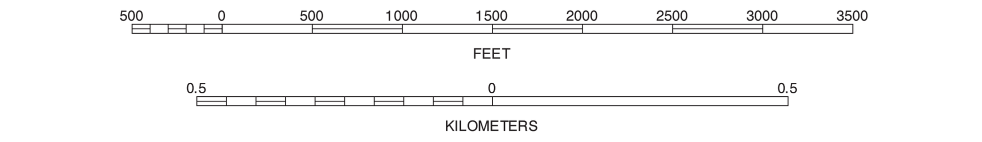
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

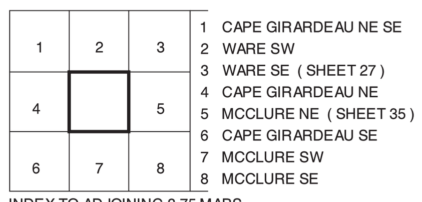
UNION COUNTY, ILLINOIS
MCCLURE NW QUADRANGLE
SHEET NUMBER 34 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1993-1996 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets. Digital data are available for this quadrangle.

SCALE 1:12000





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MCCLURE NW, ILLINOIS
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SHEET NUMBER 34 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MCCLURE NE QUADRANGLE
SHEET NUMBER 35 OF 41

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SCALE 1:12000

1	2	3
4		5
6	7	8

1 WARE SW
2 WARE SE (SHEET 27)
3 JONESBORO SW (SHEET 28)
4 MCCLURE NW (SHEET 34)
5 MILL CREEK NW (SHEET 36)
6 MCCLURE SW
7 MCCLURE SE
8 MILL CREEK SW

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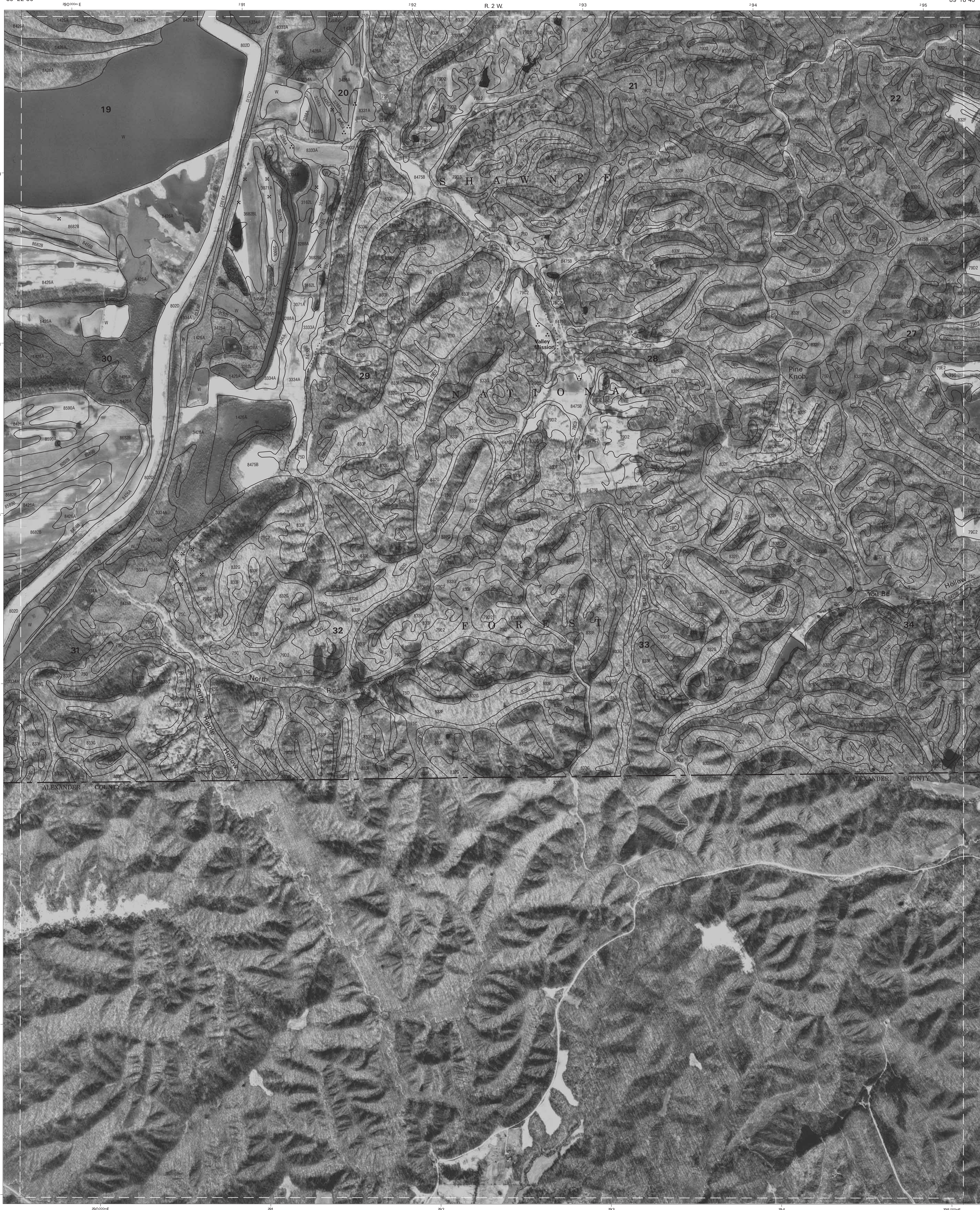
3.75 MINUTE SERIES
SHEET NUMBER 35 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MILL CREEK NW QUADRANGLE
SHEET NUMBER 36 OF 41

89° 22′30″ — 89°18′45″
37° 22′30″ — 37°18′45″



37°18′45″ — 37°18′45″
89° 22′30″ — 89°18′45″

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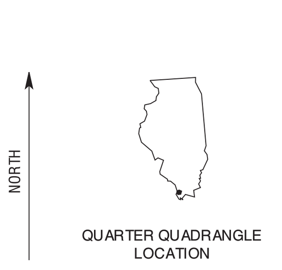

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5
FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500
KILOMETERS: 0.5 — 0 — 0.5

1	2	3
4		5
6	7	8

1 WARE SE (SHEET 27)
2 JONESBORO SW (SHEET 28)
3 JONESBORO SE (SHEET 29)
4 MCCLURE NE (SHEET 35)
5 MILL CREEK NE (SHEET 37)
6 MCCLURE SE
7 MILL CREEK SW
8 MILL CREEK SE

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MILL CREEK NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 36 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
MILL CREEK NE QUADRANGLE
SHEET NUMBER 37 OF 41

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
4		5
6	7	8

1 JONESBORO SW (SHEET 28)
2 JONESBORO SE (SHEET 29)
3 ANNA SW (SHEET 30)
4 MILL CREEK NW (SHEET 36)
5 DONGOLA NW (SHEET 38)
6 MILL CREEK SW
7 MILL CREEK SE
8 DONGOLA SW

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MILL CREEK NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 37 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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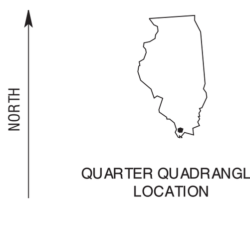
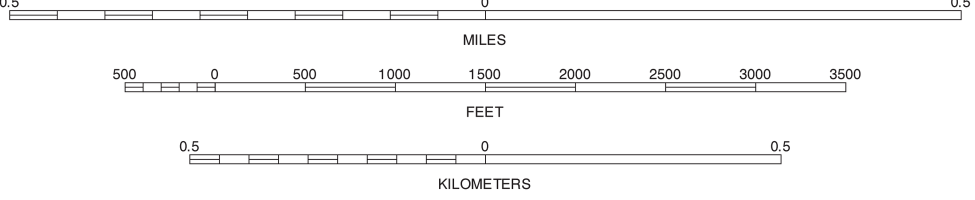
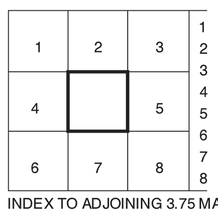


QUARTER QUADRANGLE LOCATION





1 JONESBORO SE (SHEET 29)
2 ANNA SW (SHEET 30)
3 ANNA SE (SHEET 31)
4 MILL CREEK NE (SHEET 37)
5 DONGOLA NE (SHEET 39)
6 MILL CREEK SE
7 DONGOLA SW
8 DONGOLA SE

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DONGOLA NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 38 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
DONGOLA NE QUADRANGLE
SHEET NUMBER 39 OF 41

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1	2	3
4		5
6	7	8

1 ANNA SW (SHEET 30)
2 ANNA SE (SHEET 31)
3 MOUNT PLEASANT SW (SHEET 32)
4 DONGOLA NW (SHEET 38)
5 CYPRESS NW (SHEET 40)
6 DONGOLA SW
7 DONGOLA SE
8 CYPRESS SW

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DONGOLA NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 39 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
CYPRESS NW QUADRANGLE
SHEET NUMBER 40 OF 41

SCALE 1:12000

MILES

FEET

KILOMETERS

NORTH

QUARTER QUADRANGLE LOCATION

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1	2	3
4		5
6	7	8

1 ANNA SE (SHEET 31)
2 MOUNT PLEASANT SW (SHEET 32)
3 MOUNT PLEASANT SE (SHEET 33)
4 DONGOLA NE (SHEET 39)
5 CYPRESS NE (SHEET 41)
6 DONGOLA SE
7 CYPRESS SW
8 CYPRESS SE

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CYPRESS NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 40 OF 41

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNION COUNTY, ILLINOIS
CYPRESS NE QUADRANGLE
SHEET NUMBER 41 OF 41

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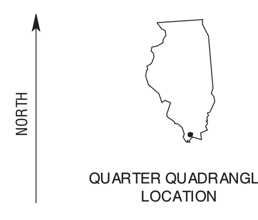


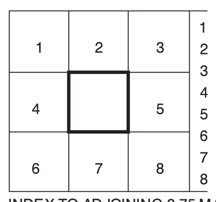
QUARTER QUADRANGLE
LOCATION

SCALE 1:12000

0.5 — 0 — 0.5
MILES

500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500
FEET

0.5 — 0 — 0.5
KILOMETERS



1 MOUNT PLEASANT SW (SHEET 32)
2 MOUNT PLEASANT SE (SHEET 33)
3 VIENNA SW
4 CYPRESS NW (SHEET 40)
5 KARNAK NW
6 CYPRESS SW
7 CYPRESS SE
8 KARNAK SW

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CYPRESS NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 41 OF 41